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UK METEOROLOGICAL OFFICE GLOBAL DATA MONITORING REPORT

OCTOBER, 95

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CONTENTS

1. Introduction

2. Global Data Monitoring Statistics

3. Composite Observing Systems for the North Atlantic (COSNA)

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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Bracknell. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Bracknell in time for inclusion into the appropriate analysis. The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background field). Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

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2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1-2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIBU observations received per day throughout the month at Bracknell and assimilated into model runs. Only data from the main hours of 00 UTC, 06 UTC, 12 UTC and 18 UTC are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At RSMC Bracknell, for synoptic stations at or below a height of 500 metres, reported mean sea-level pressure is used in the statistics. If this is unavailable the mean sea-level pressure is calculated from the reported station-level pressure and temperature.

For synoptic stations above 500 metres, the mean sea-level pressure is calculated from the reported station-level pressure and temperature, or, if these are not available the height of a standard pressure-level (e.g.: 850 hPa or 700 hPa). If neither of these are available, the reported mean sea-level pressure is used.

Some stations vary their reporting practice according to the observation hour (e.g.: some stations in the CIS report both mean sea-level and station-level pressure at 00 & 12 UTC, but only mean sea-level pressure at 06 & 18 UTC). For monitoring purposes, reported mean sea-level pressure is stored separately from that calculated from station-level pressure or height of a standard pressure-level. Only statistics for the preferred method (see above) are presented in this report, and so for certain high-level stations, such as those from the CIS, approximately half of the number of observations actually received will appear in the statistics.

Aircraft observations

TABLE 4 contains a list of statistics calculated from data received from all airline carriers.

Figure 3 shows 10 degree lat/long box average numbers of AIREP/ASDAR reports received per day throughout the month at Bracknell and assimilated into model runs in the layer 70-500 hPa. Observations with a vector wind difference (compared with the model background field) of >60 ms^{-1} have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4-7 show wind statistics for AIREP/ASDAR in the layer 70-500 hPa. Observations with a vector wind difference > 60 m s^{-1} have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed (m s^{-1})
7	RMS observation-background vector (m s^{-1})

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Bracknell and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-27 show satellite mean observation-background temperature differences for NOAA-12 soundings at 500 km resolution and figures 28-30 show the same statistics for NOAA-14.. Data are plotted where there are > 30 observations in a 10 degree lat/long box.

Figure	Layer (hPa)
25/28	850-1000
26/29	100-300
27/30	30-50

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Bracknell during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Bracknell in DRIFTER code during the month for the area 10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Bracknell from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics **(Geopotential Height and Windspeed at 100 and 500 hPa)** for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

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Revisions

1. May 95 Monitoring statistics for NOAA-11 removed. Figures 25-27 now show data for NOAA-12
2. May 95 Notes giving details of observations included in wind direction statistics clarified and corrected.
3. August 95 Monitoring statistics for NOAA-14 added with figures 28-30.

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: BRACKNELL
MONTH:October, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for ships, fixed buoys and platforms.

Standard of comparison :Background field from Bracknell global model.

Observation times :00, 06, 12, 18 UTC

Elements monitored
:Mean sea level pressure (hPa).
:Wind speed (m s^{-1}).
:Wind direction (Degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the observation is veered to the background.**

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT
:15 hPa (pressure)
:25 m s^{-1} (vector wind)

SELECTION CRITERIA :NOBS ≥ 20 , and one or more of the following:

1.|bias| ≥ 4 hPa (pressure),
≥ 5 m s^{-1} (wind speed),
≥ 30 degrees (direction).

2.SD ≥ 6 hPa (pressure),
≥ 80 degrees (direction).

3.PGE ≥ 25

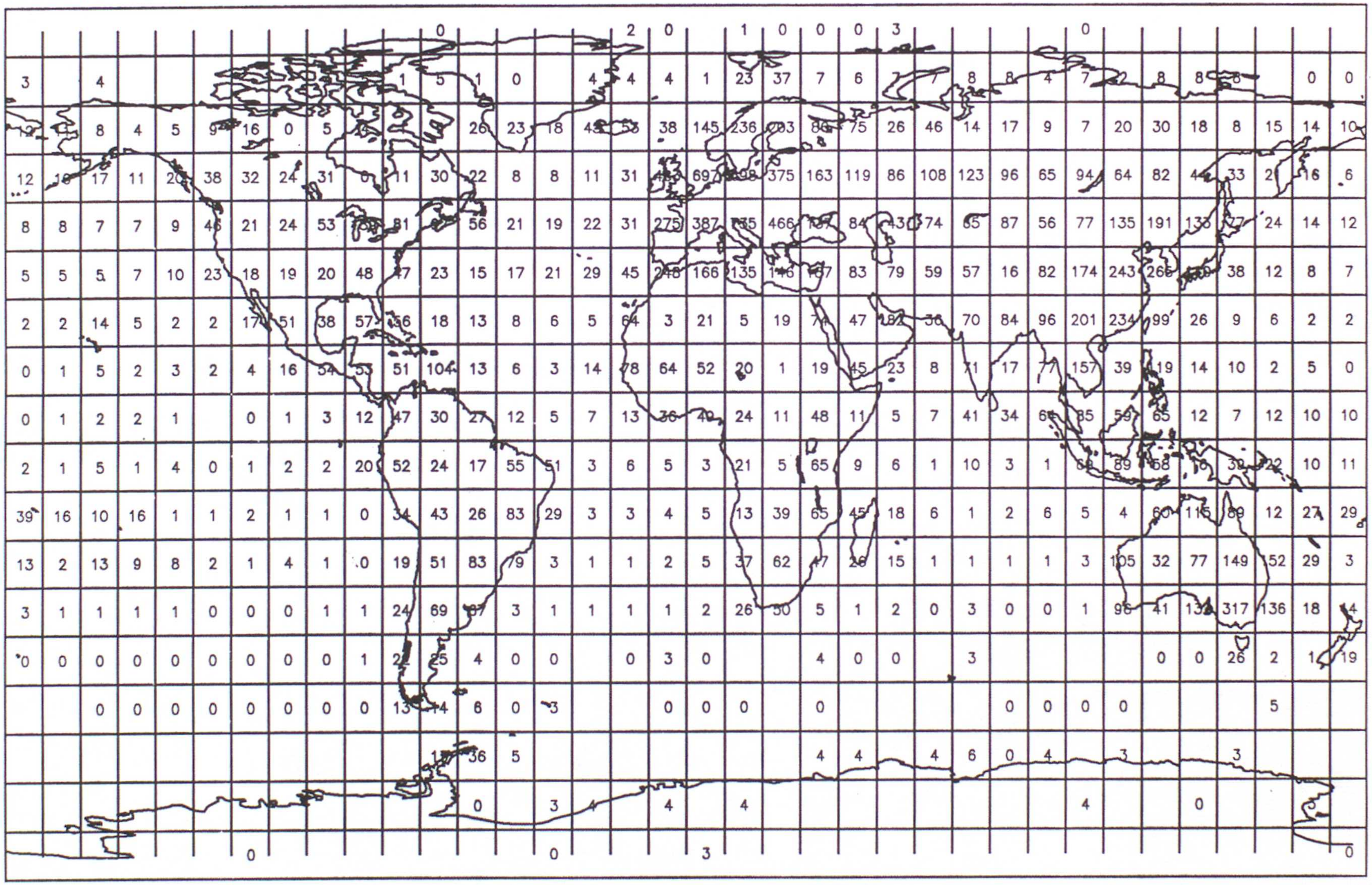
N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE									
A8SF	ALL	MSLP	SUR	95	1	1	1.5	4.5	4.7
CG3126	ALL	MSLP	SUR	26	5	19	5.0	-4.0	6.4
CZ9742	ALL	MSLP	SUR	37	37	100	0.0	0.0	0.0
C6IL3	ALL	MSLP	SUR	58	0	0	0.9	6.9	6.9
DNJS	ALL	MSLP	SUR	29	0	0	1.3	-8.1	8.2
D5NE	ALL	MSLP	SUR	55	0	0	1.7	5.7	5.9
ELIU2	ALL	MSLP	SUR	25	1	4	4.2	4.9	6.4
GOMV	ALL	MSLP	SUR	46	4	9	6.0	-3.2	6.8
KXDB	ALL	MSLP	SUR	73	0	0	4.9	-5.2	7.1
LACF4	ALL	MSLP	SUR	70	0	0	2.0	-4.7	5.1
LADN4	ALL	MSLP	SUR	28	3	11	0.9	-10.5	10.6
OVUN6	ALL	MSLP	SUR	150	1	1	1.5	4.5	4.8
OXDF3	ALL	MSLP	SUR	26	5	19	6.7	2.4	7.1
OZBL2	ALL	MSLP	SUR	55	0	0	1.0	7.4	7.4
OZ2003	ALL	MSLP	SUR	27	3	11	1.7	-5.9	6.1
P3NE5	ALL	MSLP	SUR	21	2	10	1.1	6.8	6.9
P3XM4	ALL	MSLP	SUR	82	1	1	1.7	-4.7	5.0
SVSC	ALL	MSLP	SUR	23	0	0	3.3	-4.1	5.3
UDYO	ALL	MSLP	SUR	52	31	60	5.7	-9.3	10.9
UPKU	ALL	MSLP	SUR	29	0	0	1.1	-4.2	4.4
USNN	ALL	MSLP	SUR	23	0	0	2.1	-5.4	5.8
UTTT	ALL	MSLP	SUR	31	0	0	1.0	-4.8	4.9
VCQL	ALL	MSLP	SUR	25	0	0	1.5	-6.9	7.0
VGVR	ALL	MSLP	SUR	23	0	0	1.3	4.1	4.3
VOXZ	ALL	MSLP	SUR	23	23	100	0.0	0.0	0.0
VRUH6	ALL	MSLP	SUR	25	0	0	3.1	4.2	5.3
WPPO	ALL	MSLP	SUR	24	0	0	2.9	4.9	5.7
YJWZ7	ALL	MSLP	SUR	51	1	2	2.0	-7.0	7.2
YLBF	ALL	MSLP	SUR	21	0	0	1.2	6.0	6.1
3EAY5	ALL	MSLP	SUR	26	0	0	1.3	-5.7	5.8
3ESE9	ALL	MSLP	SUR	28	1	4	1.3	5.5	5.7
3EWF5	ALL	MSLP	SUR	29	0	0	1.0	-4.0	4.1
3EWK9	ALL	MSLP	SUR	26	0	0	1.5	6.5	6.7
3FTJ4	ALL	MSLP	SUR	22	0	0	1.0	5.0	5.1
WIND SPEED									
DGNB	ALL	SPEED	SUR	190	0	0	2.9	5.0	5.8
ELDT6	ALL	SPEED	SUR	36	0	0	2.9	6.2	6.8
ELKM7	ALL	SPEED	SUR	24	1	4	4.0	5.8	7.1
ELMG2	ALL	SPEED	SUR	38	0	0	3.6	6.0	7.0
OUEK	ALL	SPEED	SUR	58	1	2	5.6	5.7	8.0
P3XM4	ALL	SPEED	SUR	70	1	1	3.7	6.1	7.1
VNGG	ALL	SPEED	SUR	29	0	0	3.9	5.3	6.5
V2SM	ALL	SPEED	SUR	21	0	0	2.0	5.8	6.1
45139	ALL	SPEED	SUR	28	4	14	6.9	9.6	11.8
WIND DIRECTION									
SWPJ	ALL	DIRN.	SUR	21	0	0	46.8	33.3	57.4
VRIY	ALL	DIRN.	SUR	33	0	0	43.4	-42.8	60.9
3EZL3	ALL	DIRN.	SUR	32	0	0	84.9	0.4	84.9
32316	ALL	DIRN.	SUR	21	0	0	81.6	-47.5	94.4
44013	ALL	DIRN.	SUR	69	0	0	27.9	-39.1	48.0
45139	ALL	DIRN.	SUR	26	4	15	92.3	83.6	124.5
46027	ALL	DIRN.	SUR	63	0	0	20.3	-51.8	55.6
46146	ALL	DIRN.	SUR	69	0	0	43.0	-30.3	52.6
46181	ALL	DIRN.	SUR	41	0	0	54.4	-38.6	66.7
46183	ALL	DIRN.	SUR	94	0	0	19.1	-30.5	35.9
51006	ALL	DIRN.	SUR	72	0	0	109.5	-12.1	110.2

AVAILABILITY – SHIP/SYNOP – OCTOBER 1995

FIGURE 1

MAIN HOURS ONLY
10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS
TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 18652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12 16 17 11 20 38 32 24 31 0 11 30 22 8 8 11 31 483 697 898 375 163 119 86 108 123 96 65 94 64 82 44 33 21 16 6
8 8 7 7 9 46 21 24 53 81 56 21 19 22 31 275 387 735 466 167 84 430 74 65 87 56 77 135 191 133 77 24 14 12
5 5 5 7 10 23 18 19 20 48 47 23 15 17 21 29 45 248 166 135 146 167 83 79 59 57 16 82 174 243 266 38 12 8 7
2 2 14 5 2 2 17 51 38 57 36 18 13 8 6 5 64 3 21 5 19 74 47 182 36 70 84 96 201 234 99 26 9 6 2 2
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0 1 2 2 1 0 1 3 12 47 30 27 12 5 7 13 36 40 24 11 48 11 5 7 41 34 64 85 59 65 12 7 12 10 10
2 1 5 1 4 0 1 2 2 20 52 24 17 55 51 3 6 5 3 21 5 65 9 6 1 10 3 1 68 89 68 16 32 22 10 11
39 16 10 16 1 1 2 1 1 0 34 43 26 83 29 3 3 4 5 13 39 65 45 18 6 1 2 6 5 4 60 115 89 12 27 29
13 2 13 9 8 2 1 4 1 0 19 51 83 79 3 1 1 2 5 37 62 47 28 15 1 1 1 1 3 105 32 77 149 152 29 3
3 1 1 1 1 0 0 0 1 1 24 69 87 3 1 1 1 1 2 26 30 5 1 2 0 3 0 0 1 96 41 132 317 136 18 14
0 0 0 0 0 0 0 0 0 1 22 25 4 0 0 0 3 0 4 0 0 3 0 0 26 2 1 19
0 0 0 0 0 0 0 0 13 14 6 0 3 0 0 0 0 0 0 0 0 5
13 36 5 4 4 4 6 0 4 3 3
0 3 4 4 4 4 0 3
0 0 3 0

TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: BRACKNELL
MONTH:October, 95

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for drifting buoys.
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Mean sea level pressure (hPa). :Wind speed (m s^{-1}). :Wind direction (degrees).
Parameters monitored		
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the observation is veered to the background.**
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.
GROSS ERROR LIMIT	:15 hPa	(pressure)
	:25 m s^{-1}	(vector wind)

SELECTION CRITERIA	:NOBS	≥ 20 , and one or more of the following:	
	1.|bias|	≥ 4 hPa	(pressure),
		≥ 5 m s^{-1}	(wind speed),
		≥ 30 degrees	(direction).
	2.SD	≥ 6 hPa	(pressure),
		≥ 80 degrees	(direction).
	3.PGE.	≥ 25.	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
16947	-40.5	114.6	ALL	MSLP	SUR	111	7	6	7.1	1.4	7.2
17604	-29.4	147.9	ALL	MSLP	SUR	212	186	88	1.3	13.0	13.1
17607	-45.7	38.9	ALL	MSLP	SUR	676	169	25	7.2	1.9	7.5
17608	-44.7	12.7	ALL	MSLP	SUR	78	49	63	1.5	11.9	12.0
33535	-41.5	23.5	ALL	MSLP	SUR	452	36	8	4.1	7.0	8.1
33540	-44.2	11.1	ALL	MSLP	SUR	626	146	23	5.9	5.6	8.1
41587	31.6	-69.5	ALL	MSLP	SUR	127	1	1	1.2	-10.8	10.9
41590	32.8	-68.6	ALL	MSLP	SUR	135	1	1	1.3	-10.5	10.6
41591	33.1	-67.4	ALL	MSLP	SUR	127	2	2	1.2	-10.8	10.9
48558	77.6	-150.4	ALL	MSLP	SUR	610	251	41	0.6	1.2	1.4
56521	-49.4	146.2	ALL	MSLP	SUR	355	46	13	6.1	-1.2	6.2
56904	-53.2	157.3	ALL	MSLP	SUR	263	16	6	3.9	4.8	6.2
73508	-61.4	110.3	ALL	MSLP	SUR	285	35	12	6.4	5.8	8.6
WIND SPEED											
44616	58.1	-27.6	ALL	SPEED	SUR	568	3	1	4.1	-8.0	9.0
46558	38.6	-154.0	ALL	SPEED	SUR	112	0	0	3.3	-6.0	6.8
WIND DIRECTION											
22520	36.6	133.1	ALL	DIRN.	SUR	52	0	0	91.0	65.7	112.2
22521	38.9	130.7	ALL	DIRN.	SUR	52	0	0	89.3	38.0	97.1
44616	58.1	-27.6	ALL	DIRN.	SUR	468	3	1	62.6	49.5	79.8
46558	38.6	-154.0	ALL	DIRN.	SUR	107	0	0	27.1	-35.0	44.3
52647	12.0	139.1	ALL	DIRN.	SUR	20	0	0	24.8	-56.9	62.1
52649	15.8	142.0	ALL	DIRN.	SUR	21	0	0	12.0	-44.8	46.4
52651	17.6	142.0	ALL	DIRN.	SUR	226	0	0	83.2	-57.8	101.3
52653	11.9	134.5	ALL	DIRN.	SUR	231	0	0	102.7	13.8	103.6
52654	24.8	144.0	ALL	DIRN.	SUR	220	0	0	68.6	-57.2	89.3

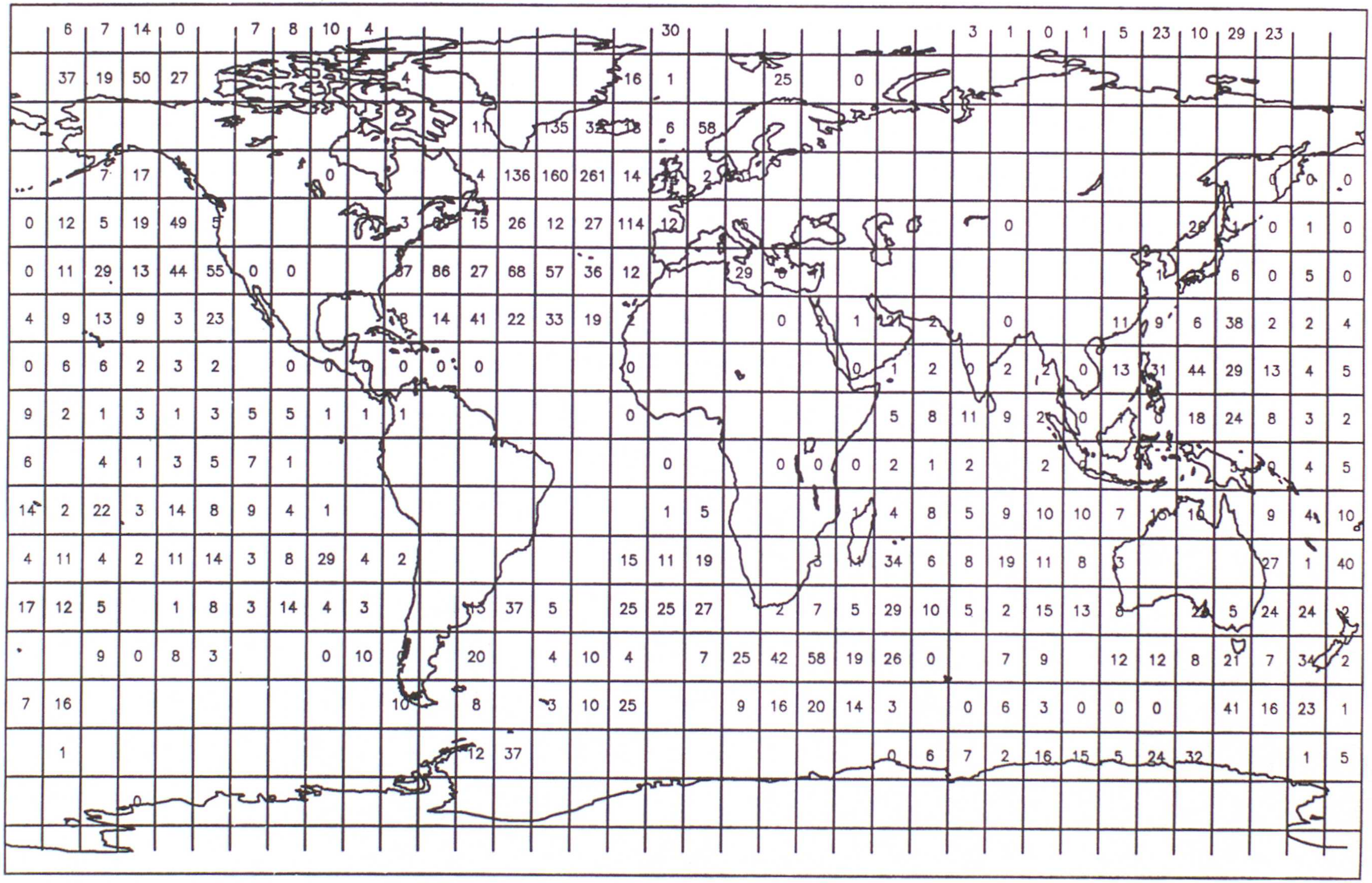
AVAILABILITY – DRIBU – OCTOBER 1995

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 4500

FIGURE 2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0 11 29 13 44 55 0 0 37 86 27 68 57 36 12 1 29 0 1 1 6 0 5 0
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0 6 6 2 3 2 0 0 0 0 0 0 0 1 2 0 2 2 0 13 31 44 29 13 4 5
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14 2 22 3 14 8 9 4 1 1 5 1 4 8 5 9 10 10 7 15 10 9 4 10
4 11 4 2 11 14 3 8 29 4 2 15 11 19 3 14 34 6 8 19 11 8 3 27 1 40
17 12 5 1 8 3 14 4 3 13 37 5 25 25 27 2 7 5 29 10 5 2 15 13 8 23 5 24 24 2
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7 16 10 8 3 10 25 9 16 20 14 3 0 6 3 0 0 0 41 16 23 1
1 12 37 0 6 7 2 16 15 5 24 32 1 5
0

TABLE 3

MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: BRACKNELL
MONTH:October, 95

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for synops & autosynops.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Mean sea level pressure (hPa).
Parameters monitored	:HT(m)	:Station height (in metres) as given in WMO No. 9 Vol A
	:RP	:Pressure reporting practice M=mean sea level pressure (hPa) reported. S=Station level pressure reported. 8=Geopotential height (m) of 850 hPa surface reported. 7=Geopotential height (m) of 700 hPa surface reported.
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	:Percentage of observations flagged.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.
GROSS ERROR LIMIT	:15 hPa	(pressure)
SELECTION CRITERIA	:NOBS	≥ 20 ,and one or more of the following:

1. |bias| ≥ 4 hPa
2. SD ≥ 6 hPa
3. PGE ≥ 25.

N.B. For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.
For stn ht < 500m, mslp is that as reported by the station where available.

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
60445	36.2N	5.4E	1081	S8	105	0	0	99	0.8	5.5	5.6
60468	35.6N	6.2E	1052	S8	104	104	100	2	0.0	0.0	0.0
60511	35.3N	1.4E	1127	S8	106	105	99	99	0.0	12.7	12.7
60535	34.7N	3.3E	1144	S8	66	5	8	80	1.8	-4.7	5.0
60670	24.6N	9.5E	1054	S8	105	0	0	100	0.9	8.6	8.6
63333	11.1N	39.7E	1916	MS	78	0	0	99	0.9	7.1	7.2
63453	8.8N	39.8E	1062	S	49	1	2	98	1.3	11.6	11.7
63478	5.1N	44.6E	320	MS	46	0	0	0	0.9	6.9	7.0
67022	14.7S	49.6E	474	MS	26	26	100	0	0.0	0.0	0.0
68014	19.6S	18.1E	1411	S8	88	1	1	30	1.3	-5.1	5.3
68442	29.1S	26.3E	1354	S8	90	1	1	92	1.6	-5.6	5.8
68752	32.8S	27.4E	524	S8	70	2	3	96	1.2	-8.2	8.3

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
29956	52.8N	99.9E	455	MS	108	4	4	50	6.7	2.3	7.1
29999	52.5N	99.8E	1570	S8	105	104	99	91	0.0	14.8	14.8
30554	54.5N	113.6E	995	MS	61	1	2	98	1.2	10.5	10.6
36870	43.4N	77.0E	663	MS	62	62	100	98	0.0	0.0	0.0
40701	39.3N	44.4E	1470	MS	72	2	3	96	1.2	7.5	7.6
40743	36.2N	57.7E	941	MS	113	1	1	33	1.1	-4.9	5.0
40762	35.3N	59.2E	1333	MS	113	35	31	100	0.8	-13.4	13.4
40763	35.2N	58.5E	1060	MS	37	0	0	59	0.9	-5.9	6.0
40783	32.4N	49.7E	1972	MS	37	0	0	70	1.7	-5.6	5.9
40789	33.8N	55.1E	921	MS	58	1	2	98	1.1	8.3	8.4
40836	30.8N	51.7E	1880	MS	62	0	0	100	1.2	8.9	9.0
40859	29.0N	53.7E	1383	MS	66	0	0	100	2.8	9.5	9.9
41244	24.2N	55.8E	299	M	122	0	0	0	1.4	7.5	7.6
41254	23.1N	57.7E	1755	S8	90	90	100	90	0.0	0.0	0.0
41396	16.0N	48.9E	700	MS	30	0	0	77	1.9	6.6	6.9
44277	46.4N	96.3E	2147	MS	107	0	0	34	1.5	-5.4	5.6
44292	47.9N	107.0E	1338	MS	92	0	0	58	1.1	4.8	4.9
44416	28.6N	81.6E	720	MS	86	1	1	38	1.3	4.2	4.4
44477	27.0N	87.4E	1445	S8	71	71	100	96	0.0	0.0	0.0
47022	40.8N	128.2E	1206	S	121	0	0	27	1.3	4.4	4.6
51334	44.6N	82.9E	321	M	124	0	0	23	2.7	4.3	5.1
52602	38.8N	93.4E	2734	S	123	0	0	13	1.7	-4.7	5.0
56287	30.0N	103.0E	629	M	124	0	0	27	1.4	4.4	4.6
56444	28.5N	98.9E	3488	S	124	123	99	100	0.0	9.6	9.6
56462	29.0N	101.5E	2994	S	118	3	3	96	2.1	7.5	7.8

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
80099	7.1N	70.7W	128	M	41	0	0	2	1.7	-5.4	5.7
82067	0.6N	69.2W	120	MS	29	0	0	3	2.4	4.2	4.8
82392	3.7S	40.4W	83	MS	28	0	0	46	5.5	-5.9	8.1
82704	7.6S	72.7W	170	MS	58	0	0	3	2.8	-4.3	5.1
82825	8.8S	63.1W	95	MS	47	0	0	0	1.8	-4.4	4.8
83208	12.7S	60.1W	652	MS	65	0	0	15	1.6	5.5	5.7
83214	10.3S	54.9W	285	MS	27	0	0	11	2.5	-4.9	5.5
83235	12.3S	46.4W	660	MS	53	0	0	91	2.1	6.9	7.2
83295	13.4S	39.9W	755	MS	30	0	0	93	1.9	-5.0	5.3
83319	14.7S	52.4W	315	MS	34	0	0	0	1.4	-4.0	4.2
83332	14.1S	46.4W	950	MS	43	13	30	100	1.0	13.6	13.6
83361	15.6S	56.1W	179	M	43	0	0	5	1.7	4.1	4.4
83408	14.3S	43.8W	556	MS	43	2	5	100	1.2	11.4	11.5

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
83423	16.7S	49.3W	729	MS	53	0	0	68	1.2	-5.1	5.2
83488	17.8S	42.9W	1097	MS	58	58	100	100	0.0	0.0	0.0
83531	18.6S	46.5W	896	MS	59	2	3	59	1.0	-6.4	6.5
83587	19.8S	43.9W	850	MS	72	0	0	96	1.3	-7.7	7.8
83689	21.3S	43.8W	1171	MS	50	1	2	78	1.1	4.6	4.7
83704	22.3S	53.9W	369	MS	43	1	2	77	4.9	-6.4	8.1
84455	6.5S	76.4W	282	MS	93	0	0	9	2.0	5.4	5.8
84472	7.1S	78.5W	2622	S	51	0	0	94	1.1	-5.4	5.5
84501	8.1S	79.0W	30	MS	121	0	0	0	1.8	4.4	4.8
84542	9.4S	77.6W	2760	S	50	1	2	8	1.6	6.6	6.8
84658	12.6S	69.2W	266	MS	91	0	0	0	2.4	5.6	6.1
84686	13.6S	72.0W	3249	S	124	0	0	3	2.1	-5.7	6.1
84782	18.1S	70.3W	469	MS	121	0	0	0	1.5	7.5	7.6
85312	19.8S	63.9W	992	S	23	1	4	91	1.7	-9.5	9.7
85406	18.3S	70.3W	58	M	119	1	1	7	1.5	5.3	5.5

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
71826	53.2N	70.9W	539	MS	122	122	100	0	0.0	0.0	0.0
76118	30.4N	109.7W	1040	MS	29	0	0	100	0.7	-10.0	10.0
76539	22.1N	101.0W	1871	MS	94	0	0	84	1.0	-4.2	4.3
76632	20.1N	98.7W	2417	MS	44	0	0	100	0.9	-5.5	5.6
76726	18.9N	99.3W	1560	MS	59	0	0	100	1.5	-8.4	8.5
76762	17.5N	99.5W	1360	MS	60	2	3	100	1.1	11.6	11.7
76775	17.1N	96.7W	1550	MS	55	1	2	18	1.3	4.0	4.2
76848	16.3N	92.1W	1530	MS	95	13	14	100	1.1	-13.0	13.0

WMO REGION 5:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
96533	1.1N	109.7E	38	M	36	0	0	94	1.6	-4.9	5.2

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
01245	62.6N	9.7E	630	MS	93	0	0	100	1.4	-5.8	6.0
06762	46.2N	8.9E	198	MS	123	0	0	2	1.4	4.2	4.4
08221	40.5N	3.6W	633	MS	119	0	0	98	0.9	6.7	6.8
11024	48.4N	15.4E	860	M	103	57	55	100	0.6	-14.2	14.2
11255	46.7N	13.0E	706	MS	124	0	0	47	1.7	4.1	4.4
15052	47.4N	25.6E	1541	S8	118	0	0	99	1.3	-6.0	6.1
16020	46.5N	11.3E	1461	MS	59	59	100	0	0.0	0.0	0.0
16614	40.4N	21.3E	604	MS	107	1	1	100	1.1	-7.0	7.1
17084	40.6N	35.0E	837	MS	122	0	0	98	1.1	7.5	7.6
17260	37.1N	37.4E	855	MS	119	119	100	100	0.0	0.0	0.0
37228	43.1N	44.6E	670	MS	60	0	0	45	1.5	-4.2	4.5
40072	34.4N	40.9E	182	M	95	0	0	28	1.5	9.2	9.3

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89208	90.0S	0.0W	2835	S7	73	73	100	8	0.0	0.0	0.0
89262	67.0S	60.6W	17	MS	68	0	0	22	2.4	-4.2	4.8
89264	71.4S	68.9W	780	S8	72	0	0	44	3.3	8.0	8.7
89324	80.0S	120.0W	1530	S8	73	5	7	19	3.7	-4.9	6.1
89828	74.5S	123.0E	3280	S7	73	16	22	67	4.2	9.2	10.1

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89860	74.2S	160.3E	1772	S8	73	0	0	11	2.4	-7.0	7.4

TABLE 4

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:October, 95

Monitoring procedures		
Period		:One calendar month.
Data monitored		:Statistics for each airline carrier.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:All hours combined.
Level(s) monitored		:70.0 - 500.0 hPa
Elements monitored		:TEMP in °C ; WIND in $m\ s^{-1}$
Parameters monitored		
	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.
GROSS ERROR LIMITS		:10.0 °C ; 60 $m\ s^{-1}$ Vector Wind
SELECTION CRITERIA		:N REP $\geq$ 20

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAA	89	0	0	2.5	1.6	88	0	2	1	7.6	-0.3
AAL	5347	0	1	1.7	0.2	5325	0	2	0	8.3	1.5
AAN	266	0	0	1.7	-0.1	252	0	3	0	9.1	0.7
AAR	2157	1	1	1.6	0.0	2143	0	2	0	8.6	1.2
ACA	951	0	2	1.9	-0.2	973	0	2	1	7.1	1.0
ACI	34	0	0	2.2	1.3	34	0	0	0	9.7	3.0
ACU	44	0	0	1.7	-0.5	45	0	2	0	8.8	1.1
AEA	237	3	100	2.1	0.2	228	0	5	0	9.3	1.3
AEL	545	0	4	2.3	-0.1	548	0	3	0	8.7	1.4
AFL	348	4	100	3.6	2.1	352	1	7	1	10.4	1.0
AFR	1204	1	6	1.9	-0.1	1208	0	6	0	8.7	1.7
AIH	146	1	0	1.3	0.1	147	0	0	0	7.6	1.2
AJJ	48	0	2	2.5	1.2	49	0	100	0	10.4	1.7
AME	22	5	0	1.9	-0.2	22	0	5	0	13.0	2.0
AMT	305	1	1	1.3	0.3	306	0	2	1	7.0	1.8
AMX	231	1	3	1.6	-0.1	238	0	4	0	8.9	2.0
ANA	946	0	1	1.9	-0.5	938	0	1	0	8.6	1.3
ANZ	2585	1	3	2.0	-0.2	2582	0	3	1	8.0	1.5
AOM	358	0	2	1.7	0.8	359	0	3	0	8.3	1.3
ARP	38	0	0	1.5	1.0	37	0	0	0	6.1	2.5
ATN	46	2	4	2.8	-1.5	46	0	9	0	13.4	3.2
AUA	49	0	8	1.5	0.0	49	0	8	0	7.5	3.6
AVA	407	2	5	2.0	0.2	414	0	5	0	10.7	2.3
AVN	43	2	0	1.4	0.4	43	0	0	0	7.0	0.8
AZA	502	2	4	2.4	0.5	502	0	3	0	9.2	1.4
BAL	512	1	10	1.6	0.0	514	0	11	0	7.8	1.3
BAW	1821	0	3	1.9	0.1	1816	0	4	0	8.1	0.9
BBB	95	1	15	2.0	-0.7	102	1	18	1	8.2	1.3
BWA	410	0	2	1.9	0.9	423	0	4	1	9.0	1.9
CAL	1944	0	1	1.7	-0.2	1946	0	2	0	8.6	1.0
CCA	119	4	6	2.5	0.2	120	0	3	0	10.3	2.4
CCS	26	4	35	4.8	4.1	27	0	26	0	16.5	-1.1
CDN	2290	0	1	2.0	0.4	2288	0	2	0	8.8	1.4
CES	163	0	2	1.8	0.4	164	2	5	0	10.8	0.1
CFC	21	5	10	1.8	-0.1	21	0	14	5	6.8	0.6
CFG	980	1	2	1.8	-0.6	977	0	2	1	8.2	1.0
CKS	95	6	6	2.3	0.1	99	0	6	0	9.9	1.9
CKT	121	0	2	2.2	0.8	118	0	3	0	10.0	1.1
CLI	108	0	0	1.8	-0.4	113	0	0	0	6.3	1.1
CLX	129	0	1	1.9	-0.6	131	0	2	0	7.0	1.7
CMI	870	1	2	1.9	0.4	879	0	3	1	8.9	2.2
CMM	189	1	7	1.6	0.1	191	1	7	1	7.4	1.4
COA	758	0	1	1.6	0.6	768	0	2	1	7.3	1.3
CPA	54	2	2	1.5	-0.4	54	0	0	0	9.9	0.0
CRL	365	1	3	1.9	0.6	365	0	4	1	8.8	1.8
CTM	71	1	8	2.6	-1.0	70	0	13	3	6.0	1.1
CUB	428	2	100	3.2	1.9	426	0	100	0	11.9	2.1
DAF	36	0	0	2.3	-1.3	35	0	0	0	7.9	1.8
DAL	6279	0	1	1.9	0.6	6067	0	2	0	8.6	1.3
DHL	452	2	100	3.9	-1.8	452	0	3	0	9.4	0.5
DLH	2883	1	7	2.3	0.5	2887	0	9	3	7.7	1.2
DOA	391	1	13	2.2	0.9	389	0	13	0	9.9	1.0
EIA	175	1	9	1.7	0.0	177	0	11	1	9.4	1.8
ELY	166	1	8	1.8	0.1	168	0	9	1	9.0	0.6
EVA	1892	1	1	1.8	-0.5	1883	0	2	0	9.5	1.5
EWW	112	4	12	4.0	-0.8	116	1	11	0	13.7	3.3
FDX	1223	0	1	1.9	0.7	1237	0	3	0	8.9	1.1
FIN	373	0	1	2.0	0.5	370	0	2	1	7.9	1.3
FJI	478	3	3	1.7	0.6	475	0	2	1	9.1	1.0

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
GAF	123	1	1	1.9	-0.2	124	0	2	0	9.0	0.9
GFA	33	0	3	1.8	0.1	32	0	3	0	7.4	1.7
GIA	179	3	2	1.3	0.1	180	0	1	1	6.8	2.0
HAL	1413	0	1	1.2	0.1	1415	0	2	1	8.5	1.9
HLF	171	0	1	1.6	-0.6	165	0	1	0	8.7	1.7
HRH	45	0	2	1.5	0.0	44	0	2	0	7.8	0.2
IBE	2145	1	15	2.1	0.5	2139	0	15	0	9.9	1.5
ICE	442	1	1	1.9	0.4	442	0	2	1	7.7	0.9
JAA	79	1	3	1.6	0.6	79	0	5	1	7.5	2.8
JAL	6435	0	1	1.7	0.2	6438	0	1	0	8.5	1.3
JAZ	57	0	0	1.3	0.8	57	0	0	0	6.3	1.1
KAL	4020	1	1	1.9	0.2	4015	0	2	0	9.0	1.4
KIC	30	7	10	1.5	-0.4	29	0	3	0	7.5	0.4
KLM	2539	0	2	1.9	0.4	2525	0	2	1	8.2	1.5
LDA	215	0	8	2.0	-1.2	218	0	7	0	9.0	2.2
LDI	106	14	16	3.8	0.5	111	0	12	0	10.7	1.2
LIB	240	1	2	1.6	0.8	244	0	3	0	8.8	1.1
LOT	275	0	0	1.8	-0.3	271	0	1	0	8.8	0.9
LTU	882	0	4	1.8	0.5	848	0	4	0	8.2	1.7
MAH	26	0	4	2.6	1.8	27	0	0	0	8.7	1.3
MAS	282	0	2	2.1	-0.5	282	0	3	0	9.9	1.3
MDA	178	1	2	2.1	-0.2	178	0	2	0	9.8	0.9
MPH	696	0	2	1.8	-0.4	701	0	2	0	8.0	1.2
MRS	49	6	10	2.4	-0.3	49	0	8	4	10.2	2.7
NCA	610	0	1	2.2	0.9	609	0	1	0	8.7	0.3
NGA	63	0	2	1.6	0.6	63	0	100	0	12.9	-0.5
NJS	29	0	0	1.4	0.9	29	0	0	0	7.4	0.0
NUG	182	0	3	1.8	-1.6	182	0	3	0	7.5	5.6
NWA	9645	0	2	2.1	0.7	9644	0	2	1	8.2	1.2
OAL	36	3	6	3.1	1.8	36	0	8	0	9.3	0.9
PAC	106	1	8	2.4	0.6	106	0	3	0	7.2	1.5
PAL	861	2	2	1.9	-0.5	864	0	3	1	9.1	1.3
PAO	230	1	3	1.5	0.2	228	0	2	0	8.0	1.1
PIA	26	4	4	1.9	1.3	26	0	0	0	8.7	1.3
PNL	84	0	2	2.6	1.9	84	0	5	1	12.1	-0.6
QFA	1246	1	2	1.7	0.2	1243	0	3	1	7.5	1.3
RAF	125	0	0	1.5	0.4	125	0	2	0	9.9	1.8
RAT	22	0	0	1.5	0.1	23	0	0	4	7.4	2.7
RIA	150	1	7	2.6	1.8	150	1	9	1	12.4	1.4
RJA	53	4	4	2.7	1.0	53	0	6	0	11.6	1.1
RKA	26	0	0	0.9	-0.5	26	0	0	0	5.7	0.0
RON	33	0	0	0.9	0.4	32	0	0	0	7.1	1.3
RRR	218	2	19	2.1	0.0	222	1	21	0	9.3	0.7
SAA	191	1	2	1.9	-0.6	198	0	1	0	7.8	0.9
SAB	34	0	0	1.9	-0.3	33	0	0	0	8.2	3.6
SAS	1300	0	1	1.8	-0.1	1296	0	2	1	8.1	0.5
SIA	1367	0	2	1.9	-0.6	1365	0	3	0	9.6	1.1
SOL	56	0	0	1.6	0.3	56	0	0	0	8.2	1.6
SPP	310	0	12	2.8	1.4	307	0	14	0	10.2	1.2
SVA	122	0	2	2.0	-0.2	126	0	2	0	7.8	1.7
SVV	21	14	19	3.9	2.1	21	0	10	0	11.6	5.7
SWR	173	0	5	1.8	0.2	175	0	7	0	9.3	1.7
TAP	716	0	3	1.9	-0.4	716	0	4	0	8.8	1.7
TEJ	87	0	32	1.9	0.4	88	0	34	0	13.7	1.5
THA	304	0	1	1.9	-0.6	304	0	1	0	9.1	1.7
THY	39	3	23	3.0	-1.5	38	0	24	0	18.9	6.4
TOW	120	0	3	1.7	0.1	122	2	5	0	9.9	0.0
TSC	58	0	2	1.5	0.5	58	0	2	0	8.4	1.4
TWA	1600	2	3	2.1	0.0	1596	0	2	0	8.7	1.4

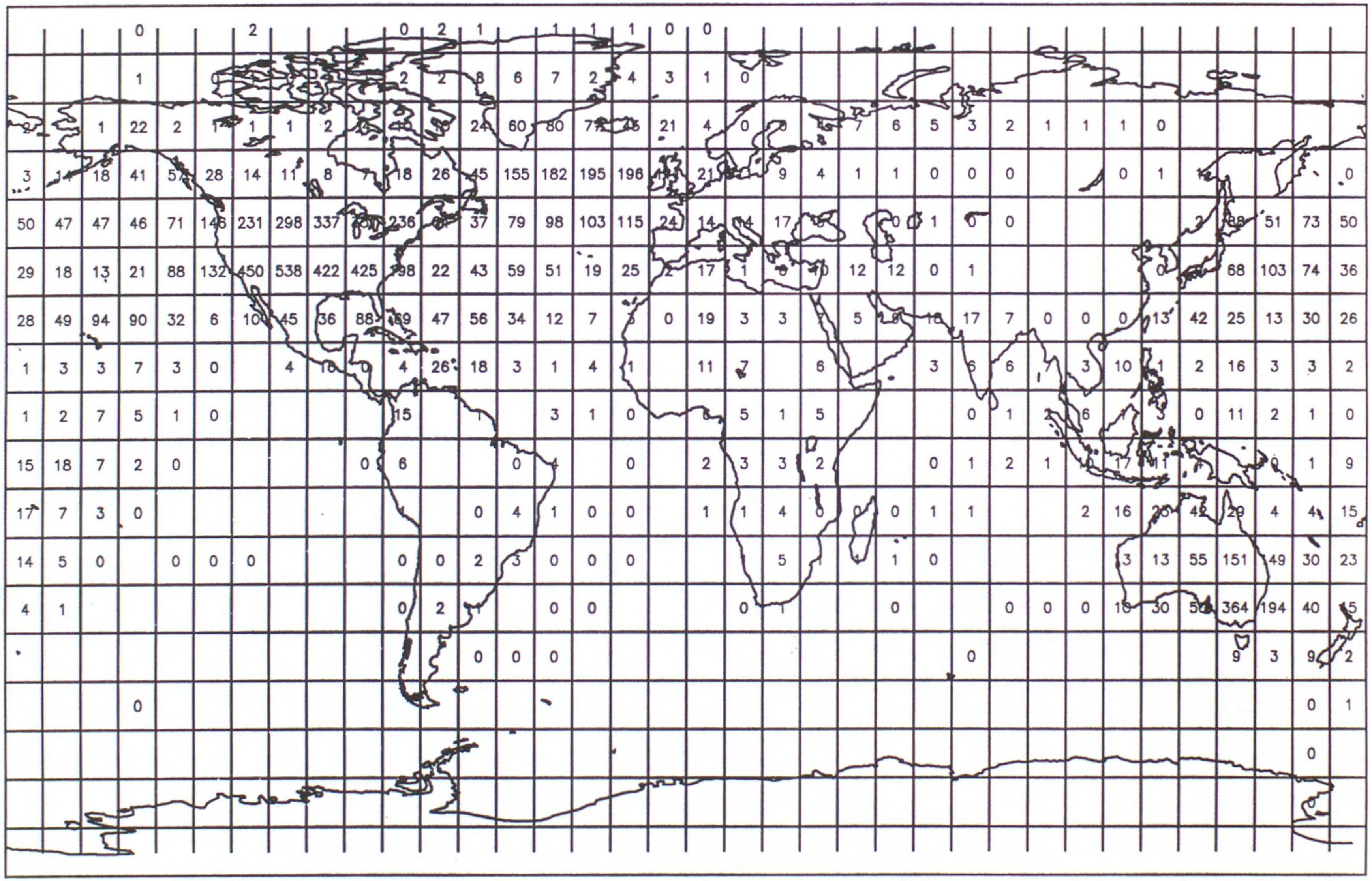
	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
UAL	42827	1	3	1.6	0.2	42857	0	3	0	7.2	1.0
UKR	26	0	31	3.9	2.0	26	0	19	0	14.9	1.5
ULE	239	0	3	1.4	0.2	237	0	4	0	9.5	1.9
UPS	1035	0	10	1.7	-0.2	1043	0	12	0	8.4	0.8
USA	293	0	1	1.8	0.0	295	1	4	0	8.5	2.6
VIA	569	1	3	1.7	0.7	570	0	4	1	8.6	1.1
VIR	175	0	2	1.9	-0.2	177	0	5	1	11.6	2.4
VRG	53	2	0	1.5	0.6	53	0	4	0	9.9	1.5
VSP	129	0	1	2.0	0.2	129	0	1	0	9.0	1.7
WOA	97	0	2	1.7	0.4	100	0	4	0	8.3	2.2
AN	25064	0	1	1.4	0.1	24904	0	1	0	6.7	1.5
BA	19608	0	11	1.6	0.6	19590	0	20	0	6.9	1.3
DL	55480	0	2	1.4	0.1	55480	0	34	0	6.5	1.2
KL	12366	0	9	1.5	0.4	12361	0	14	0	6.9	1.3
LH	2353	0	4	1.5	0.4	2344	0	4	0	6.5	1.0
MS	20	0	10	3.4	-0.8	20	0	5	0	8.5	0.8
NW	16316	0	2	1.6	0.4	16315	0	2	0	6.5	1.0
QF	10340	0	1	1.2	0.4	10328	0	1	0	6.0	1.2
SA	433	0	0	1.6	1.0	432	0	1	0	7.3	0.8
SV	716	0	9	1.6	1.2	713	0	9	0	6.1	1.7
M	322	4	98	3.5	0.6	327	0	98	0	12.8	3.4
N	547	1	4	2.6	0.8	564	0	4	0	9.4	0.9
V	20	0	0	1.6	-0.6	20	0	0	0	7.3	0.4

MEAN DAILY COUNT OF AIRCRAFT 70 – 500 HPA

OCTOBER 1995

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

FIGURE 3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1 2 2 8 6 7 2 4 3 1 0
2 1 22 2 1 1 1 2 24 60 80 21 4 0 7 6 5 3 2 1 1 1 0
3 14 18 41 57 28 14 11 8 7 18 26 45 155 182 195 196 21 9 4 1 1 0 0 0 0 1 12 0
50 47 47 46 71 146 231 298 337 236 37 79 98 103 115 24 14 14 17 0 1 0 0 2 88 51 73 50
29 18 13 21 88 132 450 538 422 425 198 22 43 59 51 19 25 2 17 1 0 12 12 0 1 0 68 103 74 36
28 49 94 90 32 6 10 45 36 88 69 47 56 34 12 7 3 0 19 3 3 5 16 17 7 0 0 0 13 42 25 13 30 26
1 3 3 7 3 0 4 16 0 4 26 18 3 1 4 1 11 7 6 3 6 6 3 10 1 2 16 3 3 2
1 2 7 5 1 0 15 3 1 0 5 1 5 0 1 6 3 0 11 2 1 0
15 18 7 2 0 0 6 0 4 0 2 3 3 2 0 1 2 1 17 11 0 1 9
17 7 3 0 0 4 1 0 0 1 1 4 0 0 0 1 1 2 16 28 42 29 4 4 15
14 5 0 0 0 0 0 0 2 3 0 0 0 5 1 1 0 3 13 55 151 49 30 23
4 1 0 2 11 0 0 0 1 0 0 0 0 10 30 50 364 194 40 15
0 0 0 0 9 3 9 2
0 0 1
0

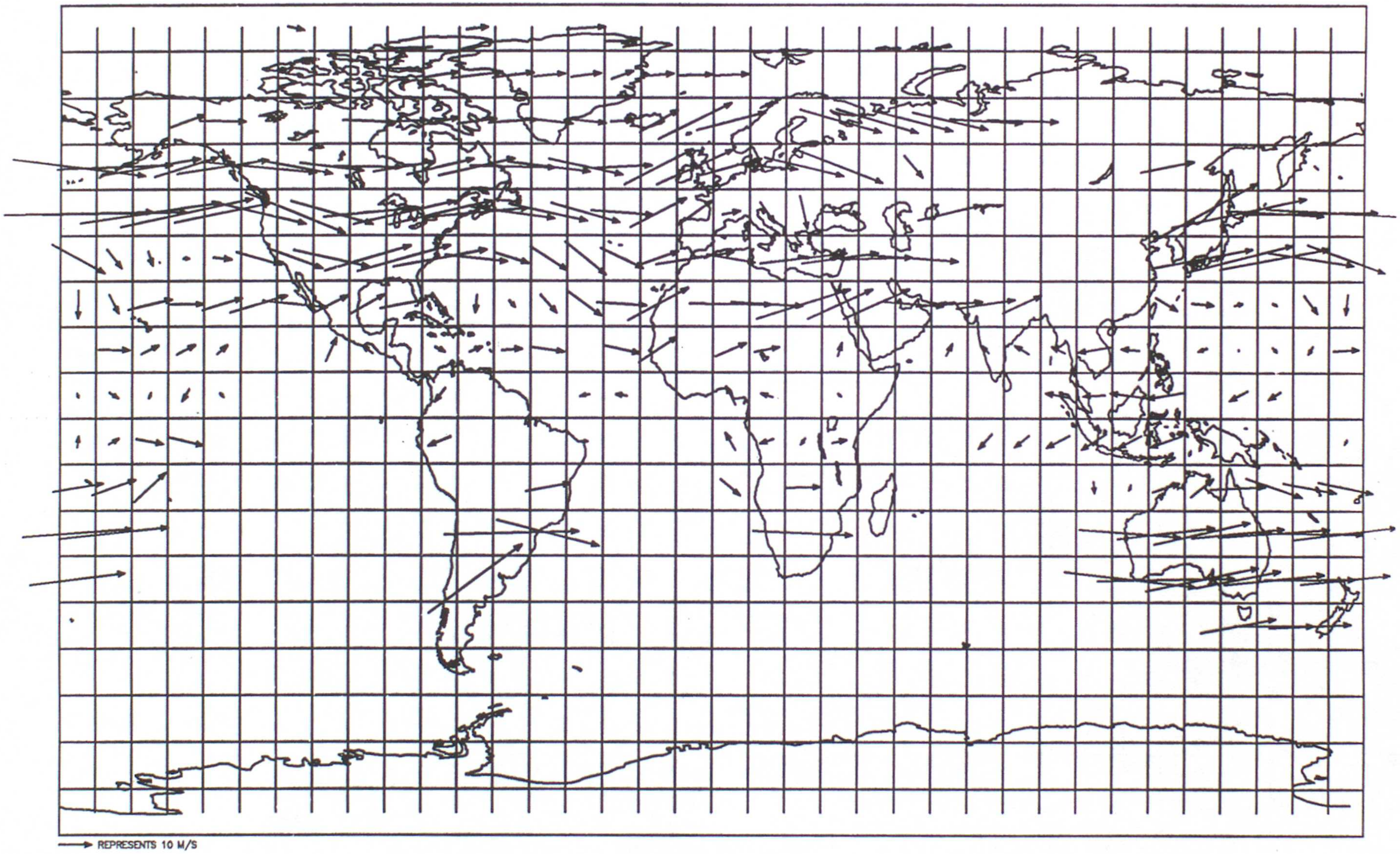
AIRCRAFT MEAN WINDS BETWEEN 70 AND 500 HPA

FIGURE 4

OCTOBER 1995

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



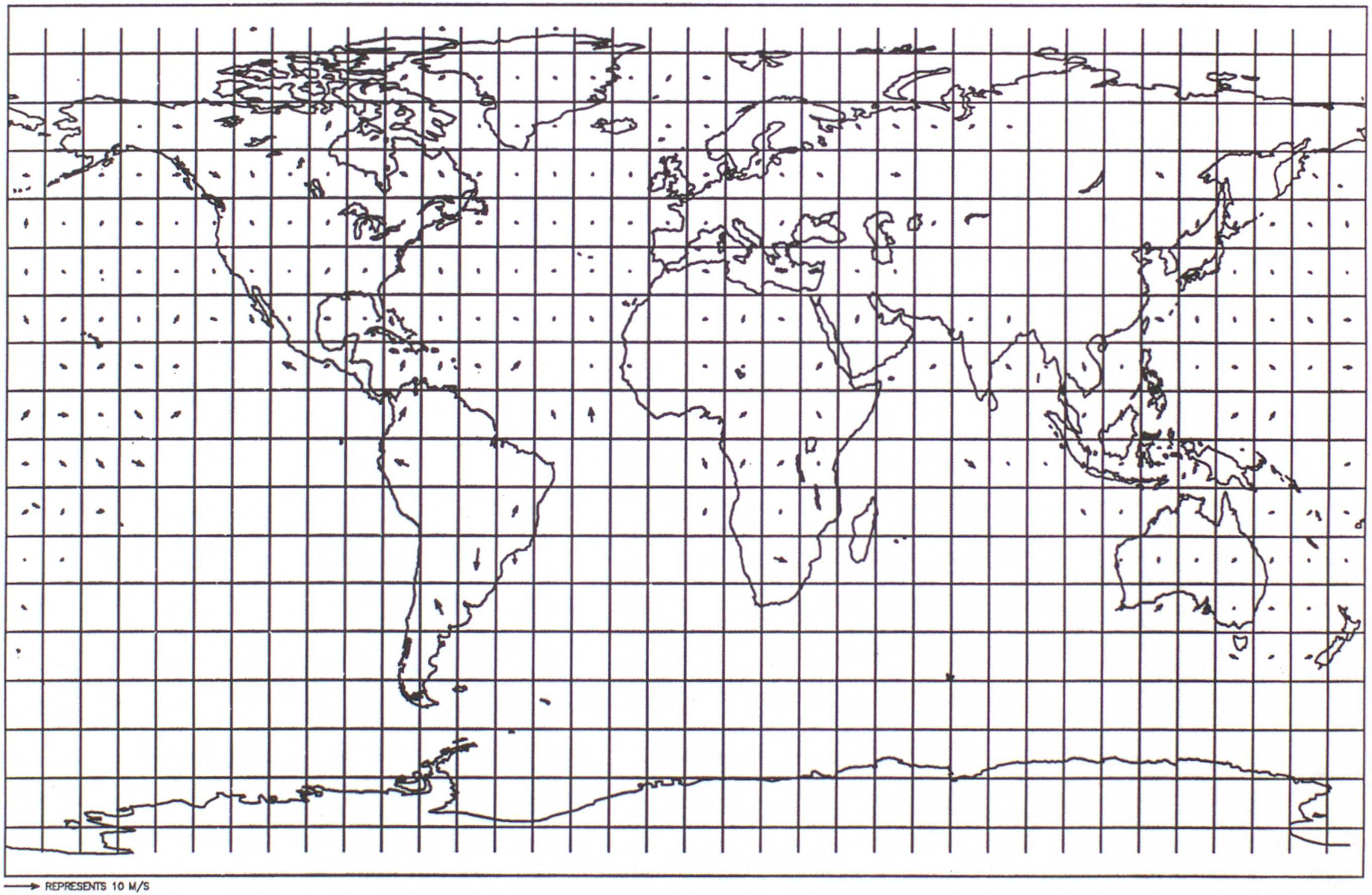
AIRCRAFT MEAN O–B WINDS BETWEEN 70 AND 500 HPA

FIGURE 5

OCTOBER 1995

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

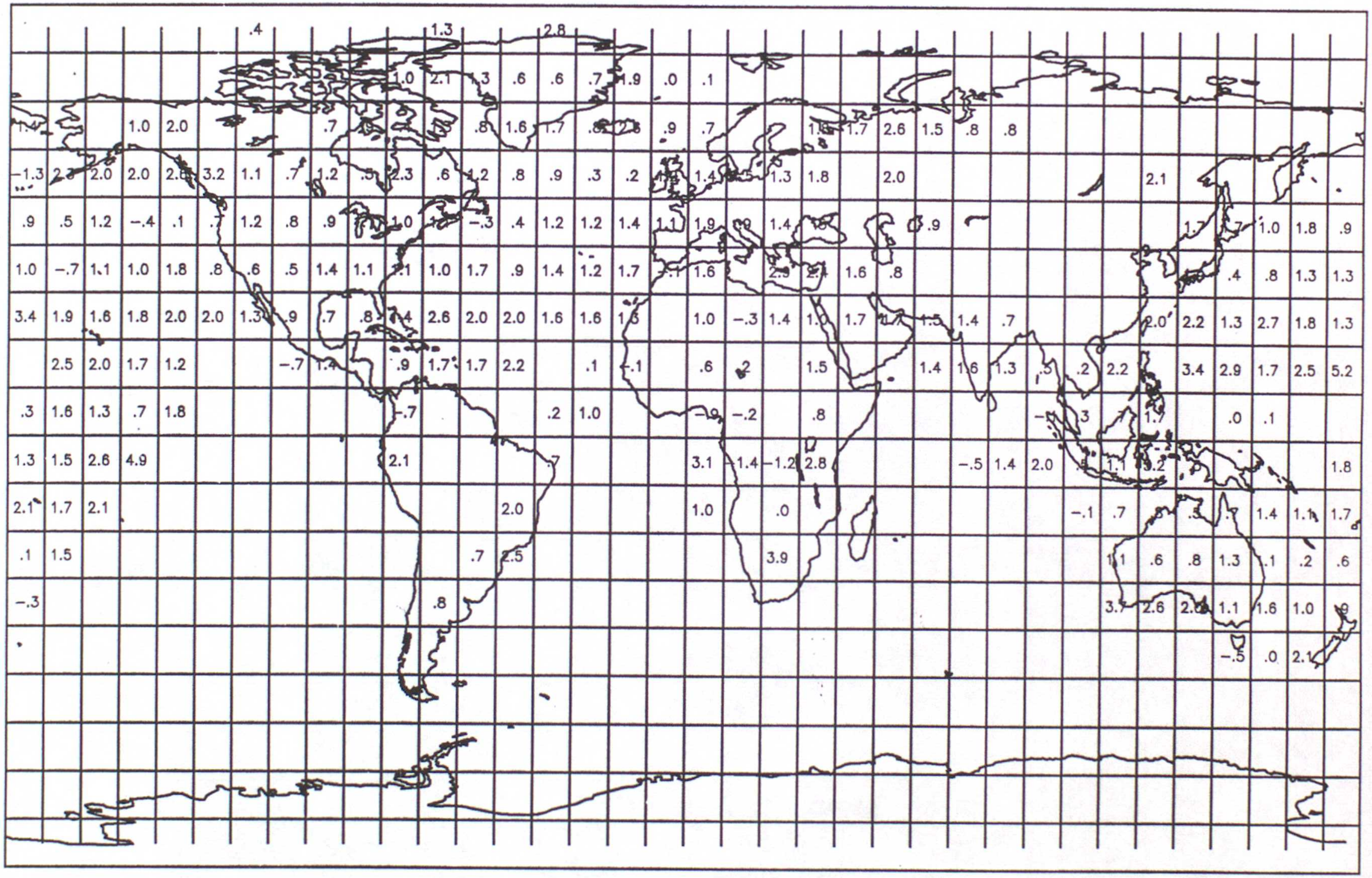


AIRCRAFT : MEAN O–B SPEEDS (M/S) BETWEEN 70 AND 500 HPA FIGURE 6

OCTOBER 1995

OBSERVATIONS WITH O–B VECTOR DIFFERENCE > 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT

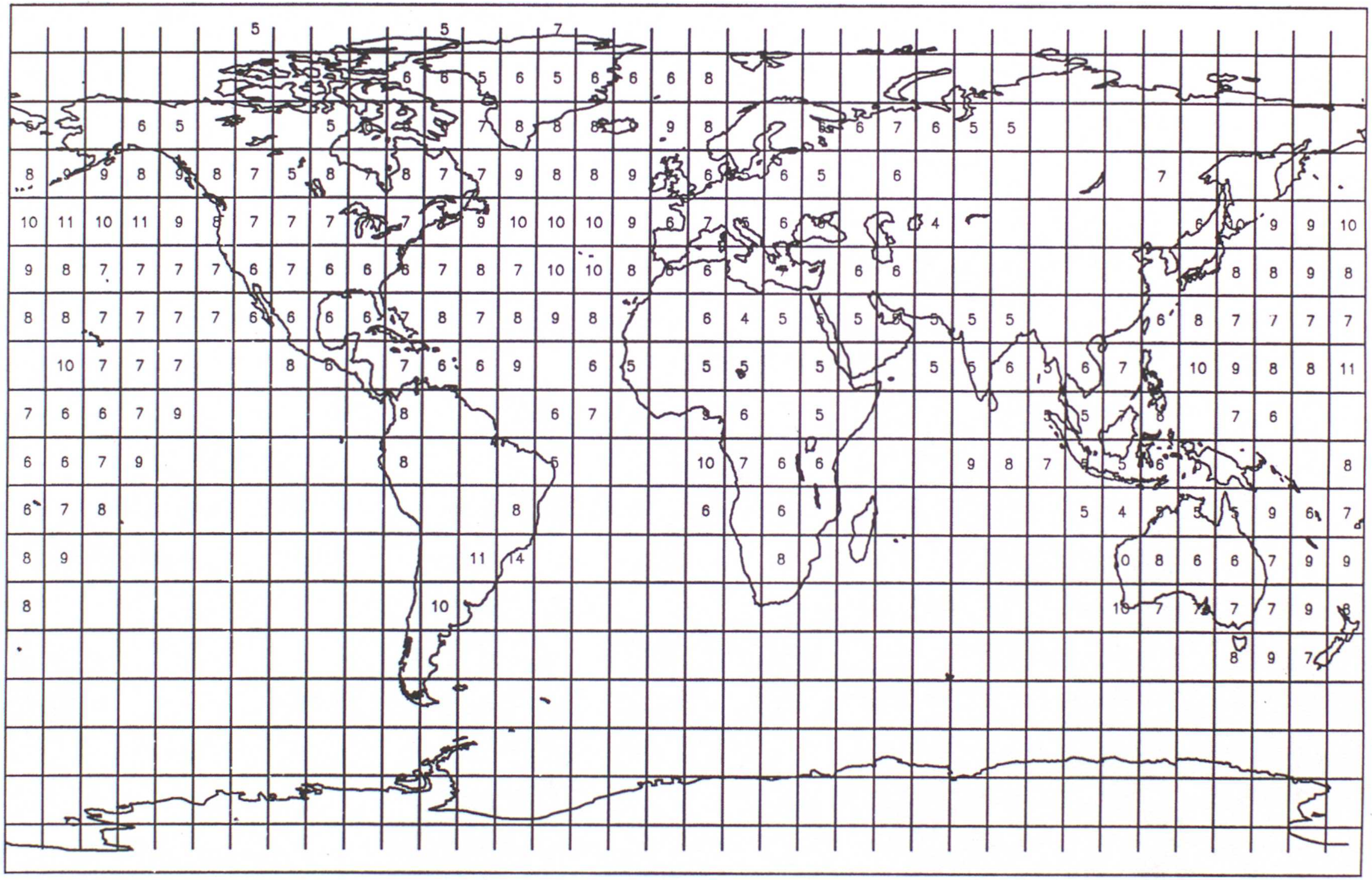

.4 1.3 2.8
1.0 2.1 .3 .6 .6 .7 1.9 .0 .1
1.4 1.0 2.0 .7 .8 1.6 1.7 .8 2.6 .9 .7 1.8 1.7 2.6 1.5 .8 .8
–1.3 2.3 2.0 2.0 2.8 3.2 1.1 .7 1.2 .5 2.3 .6 1.2 .8 .9 .3 .2 1.4 1.3 1.8 2.0 2.1
.9 .5 1.2 –.4 .1 .7 1.2 .8 .9 1.0 –.3 .4 1.2 1.2 1.4 1.1 1.9 1.9 1.4 .9 1.7 .7 1.0 1.8 .9
1.0 –.7 1.1 1.0 1.8 .8 .6 .5 1.4 1.1 1.1 1.0 1.7 .9 1.4 1.2 1.7 1.1 1.6 2.5 2.4 1.6 .8 .4 .8 1.3 1.3
3.4 1.9 1.6 1.8 2.0 2.0 1.3 .9 .7 .8 1.4 2.6 2.0 2.0 1.6 1.6 1.6 1.0 –.3 1.4 1.5 1.7 1.7 1.5 1.4 .7 2.0 2.2 1.3 2.7 1.8 1.3
2.5 2.0 1.7 1.2 –.7 1.4 .9 1.7 1.7 2.2 .1 –.1 .6 .2 1.5 1.4 1.6 1.3 .5 .2 2.2 3.4 2.9 1.7 2.5 5.2
.3 1.6 1.3 .7 1.8 –.7 .2 1.0 –.9 –.2 .8 –.3 .3 1.7 .0 .1
1.3 1.5 2.6 4.9 2.1 .7 3.1 –1.4 –1.2 2.8 –.5 1.4 2.0 .5 1.1 3.2 1.8
2.1 1.7 2.1 2.0 1.0 .0 –.1 .7 .3 .5 .7 1.4 1.1 1.7
.1 1.5 .7 2.5 3.9 1.1 .6 .8 1.3 .1 .2 .6
–.3 .8 3.7 2.6 2.0 1.1 1.6 1.0 .9
–.5 .0 2.1

AIRCRAFT : RMS O–B VECTOR (M/S) BETWEEN 70 AND 500 HPA FIGURE 7

OCTOBER 1995

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT


5 5 7
6 6 5 6 5 6 6 6 8
5 6 5 5 10 7 8 8 8 9 8 6 6 7 6 5 5
8 9 9 8 9 8 7 5 8 7 8 7 7 9 8 8 9 6 6 5 6 7
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9 8 7 7 7 7 6 7 6 6 6 7 8 7 10 10 8 6 6 6 6 8 8 9 8
8 8 7 7 7 7 6 6 6 6 7 8 7 8 9 8 6 4 5 5 5 5 5 5 5 6 8 7 7 7 7
10 7 7 7 8 6 7 6 6 9 6 5 5 5 5 5 5 6 5 6 7 10 9 8 8 11
7 6 6 7 9 8 6 7 5 6 5 5 7 8 7 6
6 6 7 9 8 5 10 7 6 6 9 8 7 5 5 6 8
6 7 8 8 6 6 5 4 5 5 5 9 6 7
8 9 11 14 8 0 8 6 6 7 9 9
8 10 10 7 7 7 7 9 8
8 9 7

TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:October, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 30.0 hPa

Element monitored :GEOPOTENTIAL HEIGHT IN metres

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.1

SELECTION CRITERIA :≥ 3 levels with ≥ 10 observations and ≥ 100 m weighted RMS.

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
25399	00	Z	250	66/-170	23	0	47.7	77.8	91.3	5
25399	12	Z	300	66/-170	20	0	49.5	84.0	97.5	8
26258	00	Z	70	58/ 28	7	8	177.6	157.7	237.5	10
42027	00	Z	70	34/ 75	12	0	136.6	-83.6	160.2	4
42182	00	Z	100	29/ 77	26	0	69.4	-123.0	141.2	7
42339	00	Z	100	26/ 73	9	1	99.3	-152.7	182.1	6
42361	00	Z	100	26/ 78	19	0	104.4	-81.9	132.7	5
42361	12	Z	50	26/ 78	11	0	141.9	-33.4	145.8	4
42369	00	Z	30	27/ 81	14	2	179.2	164.4	243.2	10
42369	12	Z	150	27/ 81	20	0	110.8	-44.5	119.4	7
42379	12	Z	30	27/ 83	19	0	166.1	192.3	254.1	8
42647	00	Z	100	23/ 73	22	0	81.5	-120.5	145.5	4
42647	12	Z	30	23/ 73	13	1	133.4	150.6	201.2	4
42667	00	Z	200	23/ 77	19	1	75.0	-41.9	85.9	5
42701	00	Z	70	23/ 85	15	0	71.5	-229.1	240.0	9
42867	00	Z	50	21/ 79	20	0	137.2	82.0	159.8	6
43014	00	Z	250	20/ 75	19	0	61.3	-69.0	92.3	6
43041	00	Z	100	19/ 82	19	0	96.5	-97.0	136.9	5
43128	12	Z	70	17/ 78	10	0	122.4	66.3	139.2	4
43185	00	Z	100	16/ 81	19	0	122.0	1.5	122.0	4
43285	12	Z	30	13/ 75	10	1	109.0	236.0	259.9	5
43369	00	Z	100	8/ 73	20	2	65.5	-138.5	153.3	5
43369	12	Z	70	8/ 73	18	0	118.5	-110.4	162.0	6
43371	00	Z	70	8/ 77	15	2	69.8	-225.7	236.3	7
44373	12	Z	200	44/ 104	8	4	65.4	145.1	159.2	4
57679	12	Z	100	28/ 113	25	0	46.6	108.4	118.0	4
57749	00	Z	30	28/ 110	25	0	77.3	172.2	188.8	5
57749	12	Z	100	28/ 110	25	0	43.5	111.4	119.6	4
57957	00	Z	100	25/ 110	29	0	44.1	144.7	151.2	7
57957	12	Z	100	25/ 110	29	0	43.0	126.8	133.9	6
58847	00	Z	100	26/ 119	25	0	50.7	107.2	118.6	5
59287	00	Z	100	23/ 113	20	0	47.4	109.8	119.6	4
59981	00	Z	70	17/ 112	20	0	44.6	128.3	135.9	5
62306	00	Z	70	31/ 27	16	0	50.5	150.7	159.0	5
62306	12	Z	70	31/ 27	9	6	32.0	340.7	342.2	9
62378	12	Z	200	30/ 31	10	0	89.1	78.6	118.8	4
63450	12	Z	700	9/ 39	27	0	7.2	46.8	47.4	6
71836	12	Z	50	51/ -81	23	1	139.2	-119.8	183.7	8
83208	12	Z	30	-13/ -60	10	0	79.5	250.1	262.4	5
89050	00	Z	200	-62/ -59	15	12	66.4	144.7	159.2	10

AVAILABILITY – TEMP – 500 HPA GEOPOTENTIAL – OCTOBER 1995

FIGURE 8

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1418

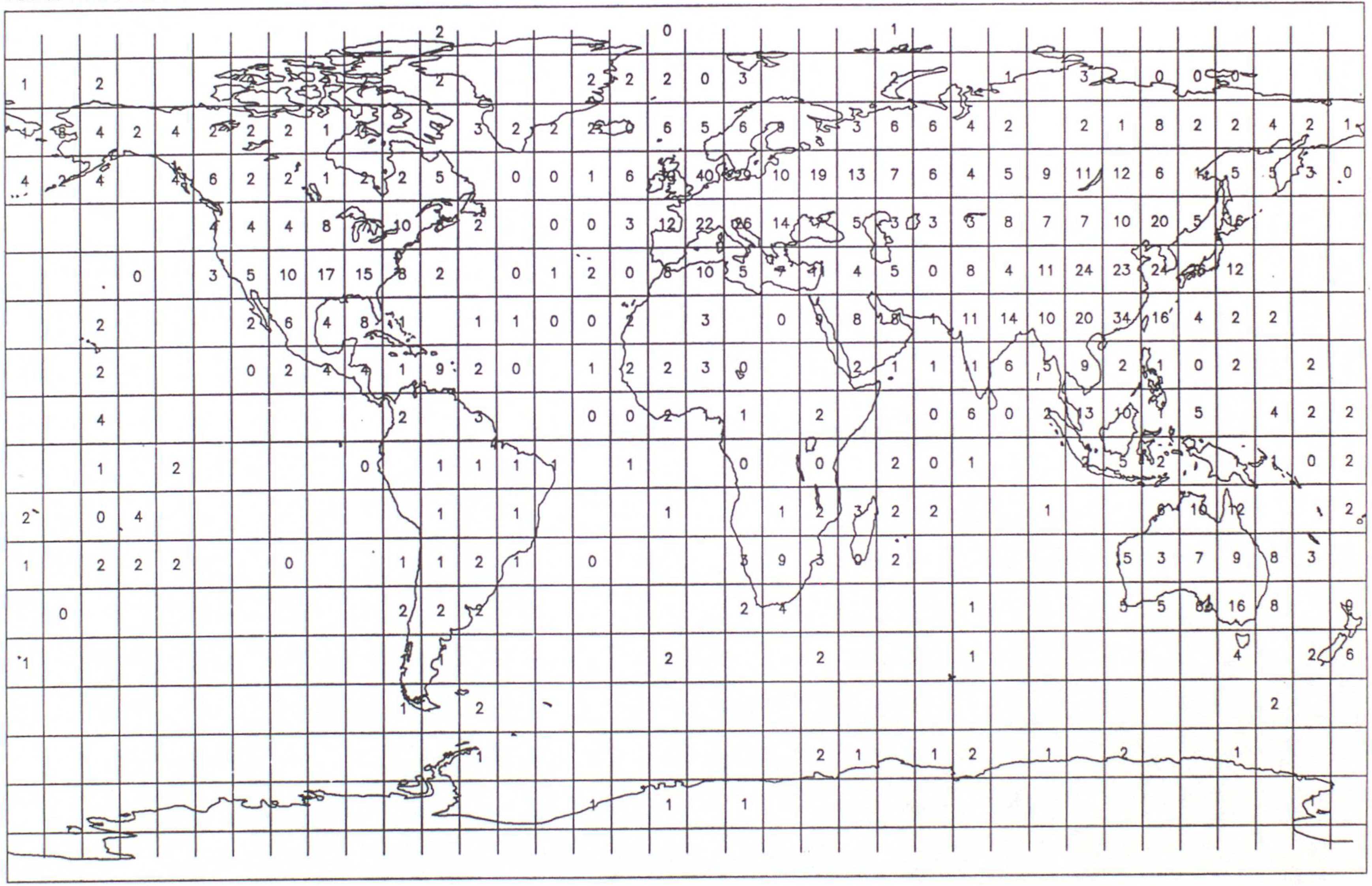


TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:October, 95

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 100.0 hPa
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored		
	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS	:Defined in Appendix I.2	
SELECTION CRITERIA	:$\geq$ 10 observations and $\geq$ 15 m s^{-1} RMS vector wind.	

ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
26258	00	V	150	58/ 28	18	0	11	3.4	-5.3	16.8	1
82965	12	V	200	-10/ -56	13	0	15	-1.9	6.8	15.1	1
83612	00	V	150	-20/ -55	13	0	7	3.5	-4.6	16.3	1
83612	12	V	150	-20/ -55	14	0	21	3.6	-0.1	18.3	1

AVAILABILITY – TEMP/PILOT – 300 HPA WIND – OCTOBER 1995
ALL HOURS
10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS
TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1275

FIGURE 9

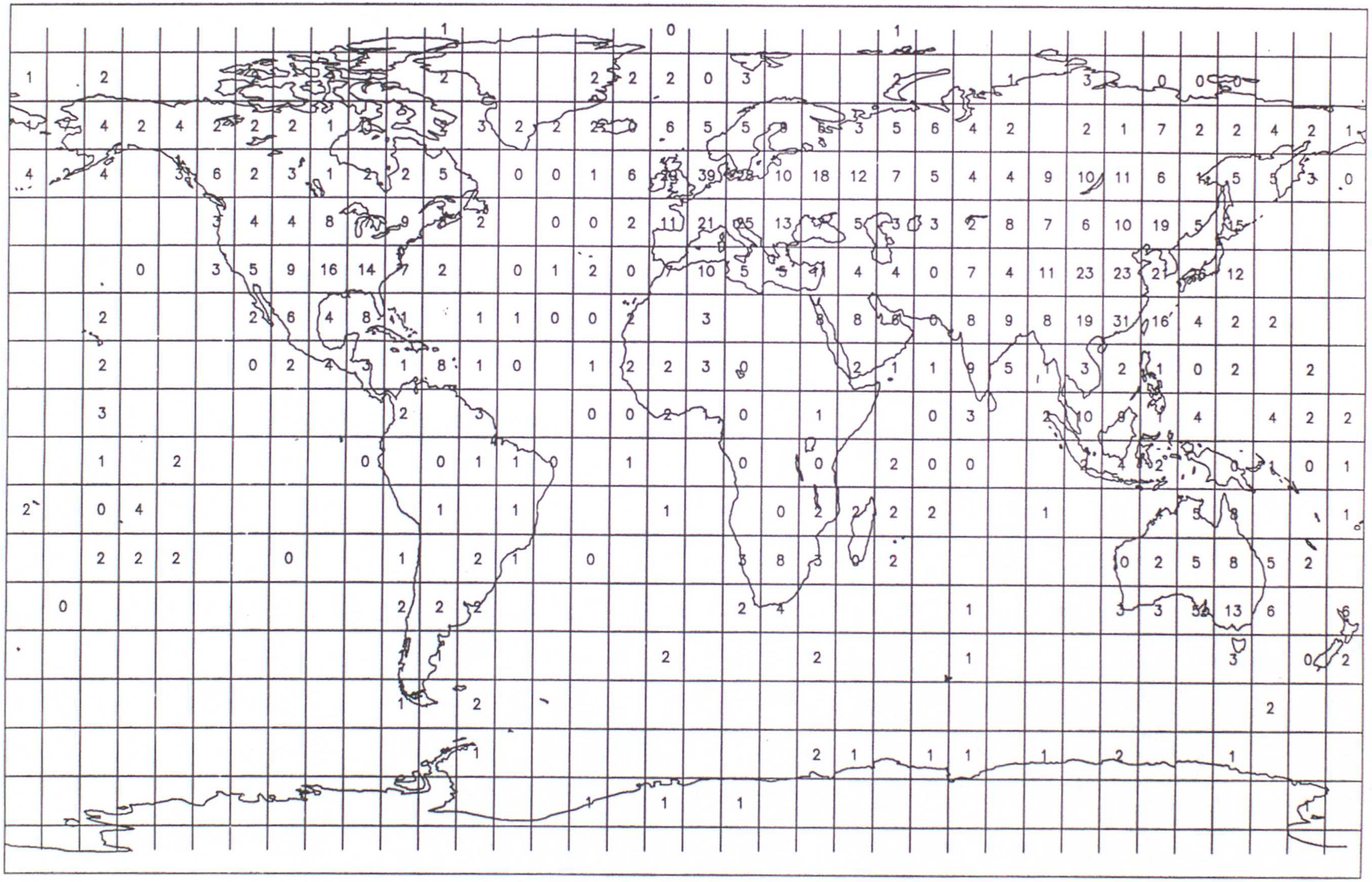


TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:October, 95

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 500.0 - 150.0 hPa
Element monitored		:WIND DIRECTION in degrees
Parameters monitored		
	:NUM OBS	:Average number of observations at all levels.
	:BIAS	:Mean difference of observations from background values from all levels.
	:MAX SPREAD	:(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels
	:SD	:SD of difference of observations from background values at all levels.

SELECTION CRITERIA :NUM OBS ≥ 5, and

ABSOLUTE BIAS ≥ 10°, with
SD < 30°, and
MAX SPREAD < 10°

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
16144	12	DD	45/ 12	25	22.6	8.0	25.0
25399	00	DD	66/-170	18	12.1	3.4	19.6
34009	12	DD	52/ 36	24	10.0	5.1	13.4
40265	00	DD	32/ 36	25	-12.8	7.3	16.9
43346	12	DD	11/ 80	14	11.1	9.4	25.1
43371	12	DD	8/ 77	13	10.7	6.6	19.6
48407	00	DD	15/ 105	19	-12.1	4.7	20.9
48568	00	DD	7/ 101	18	12.6	4.9	21.2
53614	12	DD	38/ 106	28	-12.9	5.7	9.2
55591	00	DD	30/ 91	28	-14.4	7.9	11.6
55591	12	DD	30/ 91	27	-15.8	9.2	14.1
59134	12	DD	24/ 118	19	10.0	5.7	13.9
67083	12	DD	-19/ 47	13	13.1	6.6	19.2
71853	12	DD	50/-100	15	11.6	8.7	10.4
72251	00	DD	28/ -97	26	-17.1	5.3	15.4
72251	12	DD	28/ -97	28	-14.3	3.6	11.5
83612	00	DD	-20/ -55	12	12.5	10.0	20.0
91413	12	DD	9/ 138	15	16.4	9.3	29.9
96413	00	DD	1/ 110	19	10.7	5.0	20.4
97724	12	DD	-4/ 128	13	13.8	4.4	21.6

MONITORING OF SATELLITE WINDS

MONITORING CENTRE: BRACKNELL

MONTH:October, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from GOES, METEOSAT, GMS, INSAT.

Standard of comparison :Background field from Bracknell global model.

Selection Criteria :number of observations > 10.

Data Extracted :Layer:701 - 1000 hPa
401 - 700 hPa
101 - 400 hPa

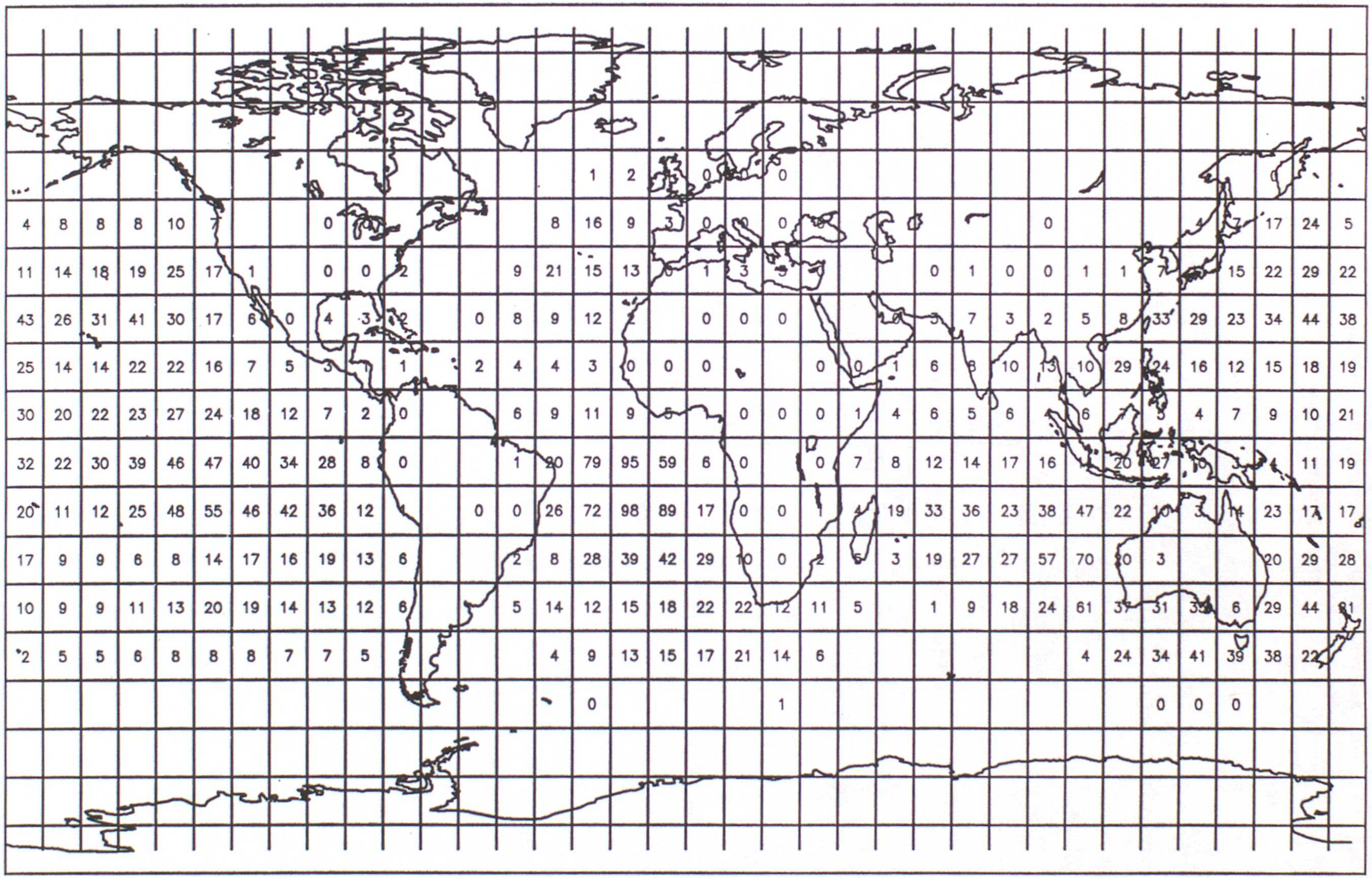
:Mean wind

:Mean observation minus background vector wind differences

:Mean observation minus background speed differences

:RMS of observation minus background vector differences

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 701 AND 1000 HPA FIGURE 10
OCTOBER 1995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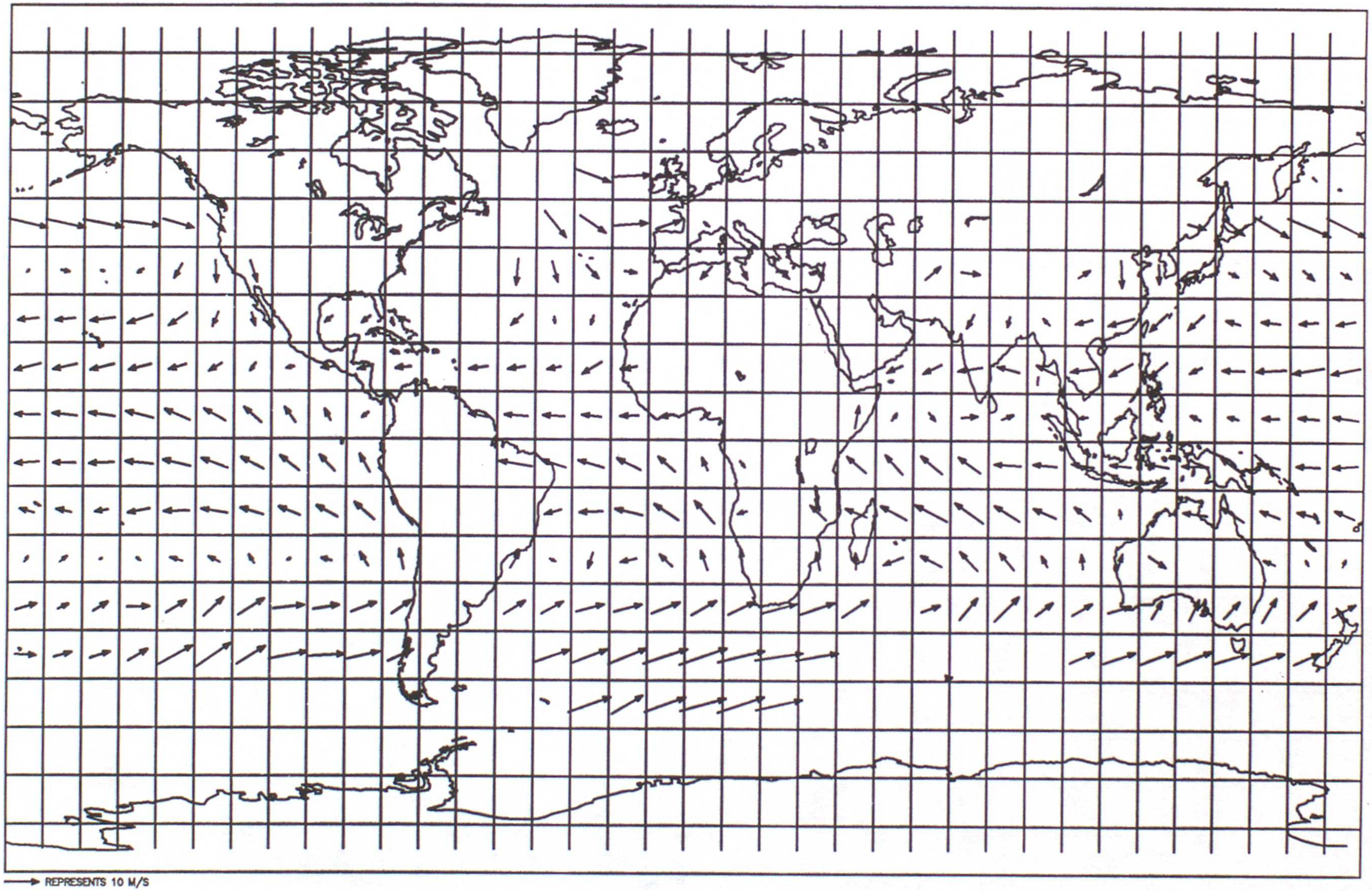
4 8 8 8 10 7 0 8 16 9 3 0 0 0 0 0 4 7 17 24 5
11 14 18 19 25 17 1 0 0 2 9 21 15 13 0 1 3 3 0 0 1 0 0 1 1 7 15 22 29 22
43 26 31 41 30 17 6 0 4 3 2 0 8 9 12 2 0 0 0 0 3 7 3 2 5 8 33 29 23 34 44 38
25 14 14 22 22 16 7 5 3 1 2 4 4 3 0 0 0 0 0 1 6 8 10 13 10 29 24 16 12 15 18 19
30 20 22 23 27 24 18 12 7 2 0 6 9 11 9 5 0 0 0 1 4 6 5 6 4 6 7 3 4 7 9 10 21
32 22 30 39 46 47 40 34 28 8 0 1 20 79 95 59 6 0 0 7 8 12 14 17 16 1 20 27 10 3 4 11 19
20 11 12 25 48 55 46 42 36 12 1 0 0 26 72 98 89 17 0 0 1 4 19 33 36 23 38 47 22 10 3 14 23 17 17
17 9 9 6 8 14 17 16 19 13 6 2 8 28 39 42 29 10 0 2 5 3 19 27 27 57 70 20 3 20 29 28
10 9 9 11 13 20 19 14 13 12 6 5 14 12 15 18 22 22 12 11 5 1 9 18 24 61 37 31 33 6 29 44 31
2 5 5 6 8 8 8 7 7 5 4 9 13 15 17 21 14 6 4 24 34 41 39 38 22
0 1 0 0 0

SATOB VECTOR MEAN WINDS BETWEEN 701–1000 HPA
OCTOBER 1995
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 11


REPRESENTS 10 M/S

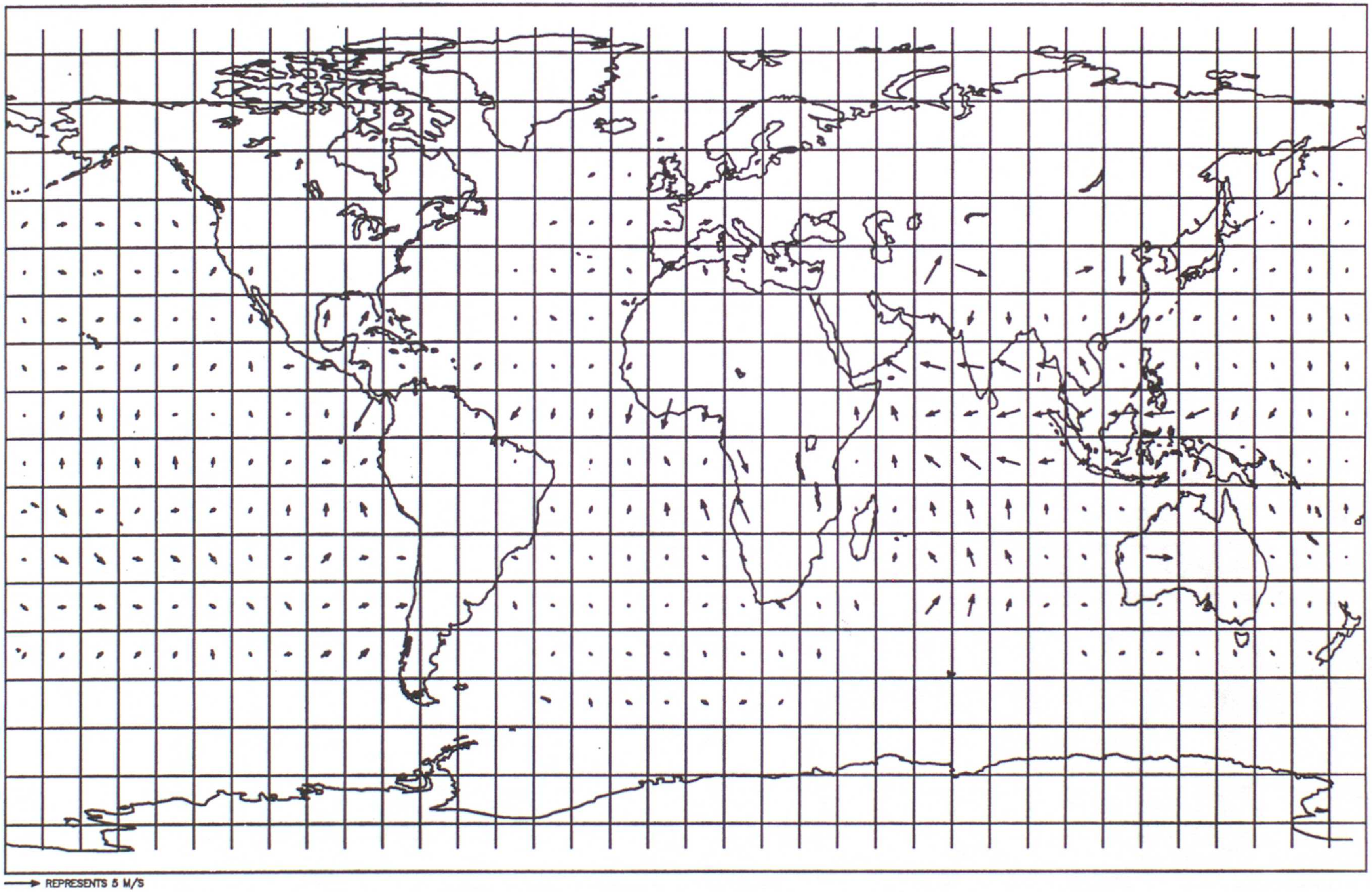
SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 701–1000 HPA

OCTOBER 1995

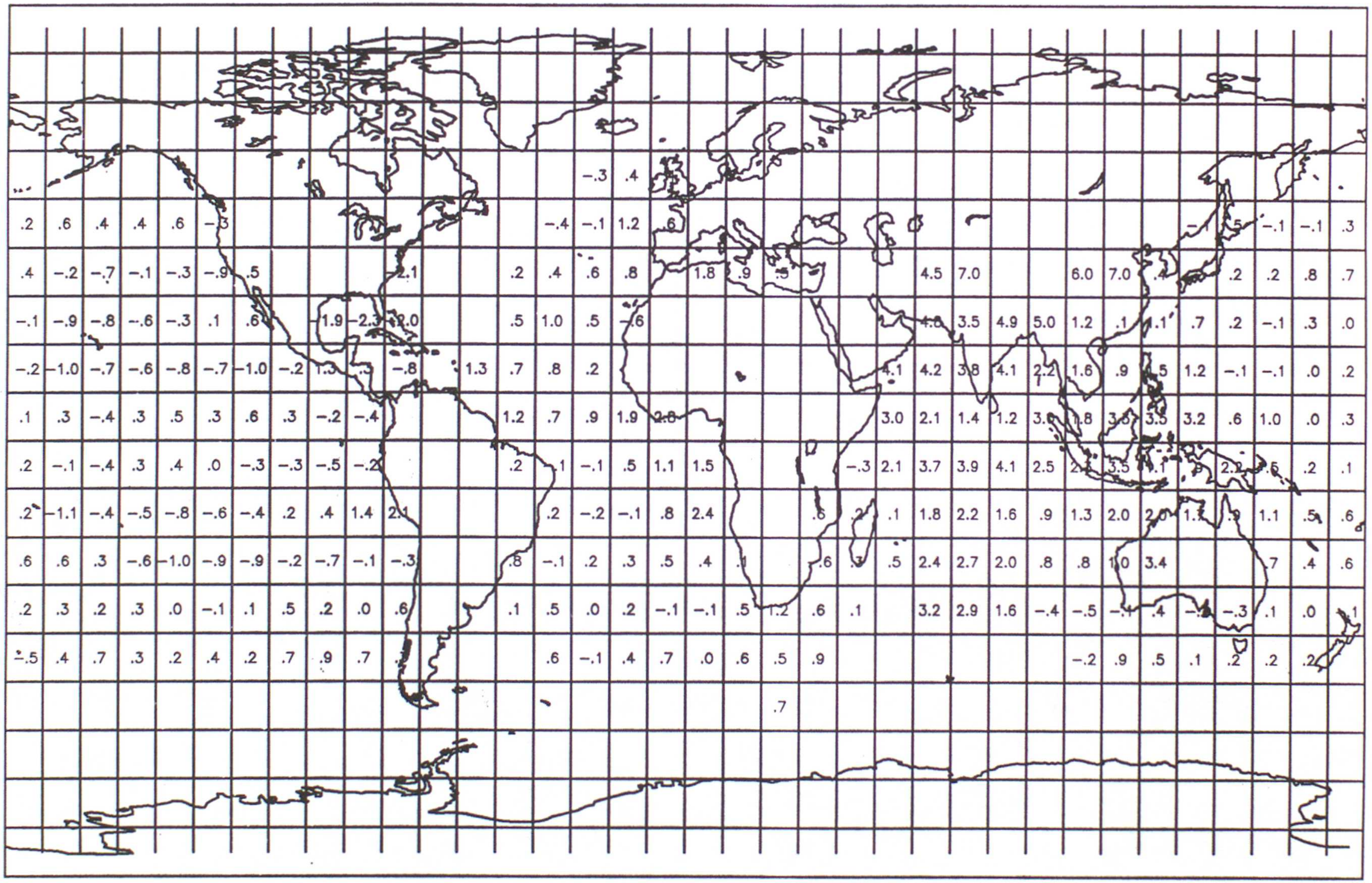
ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

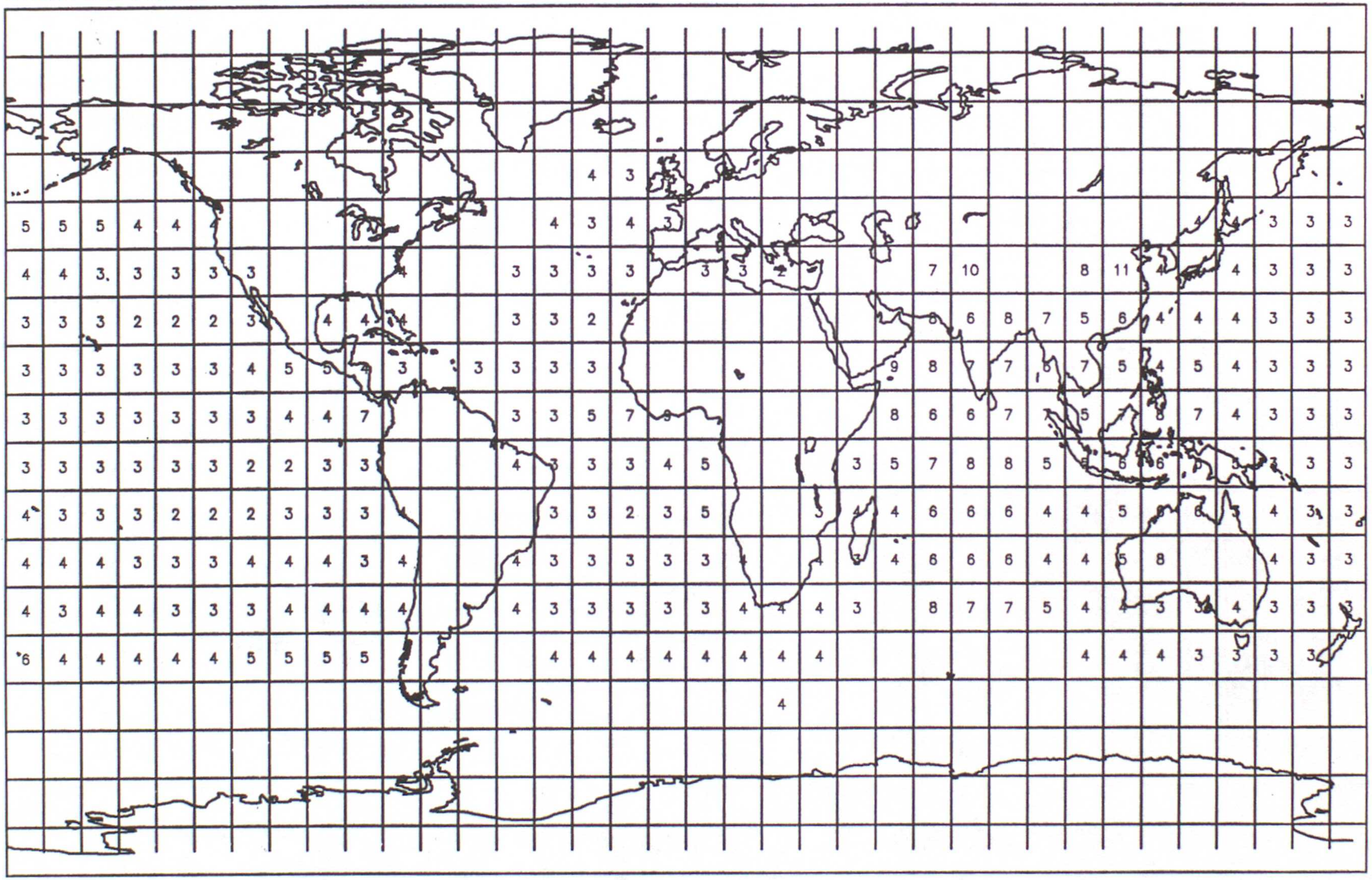
FIGURE 12



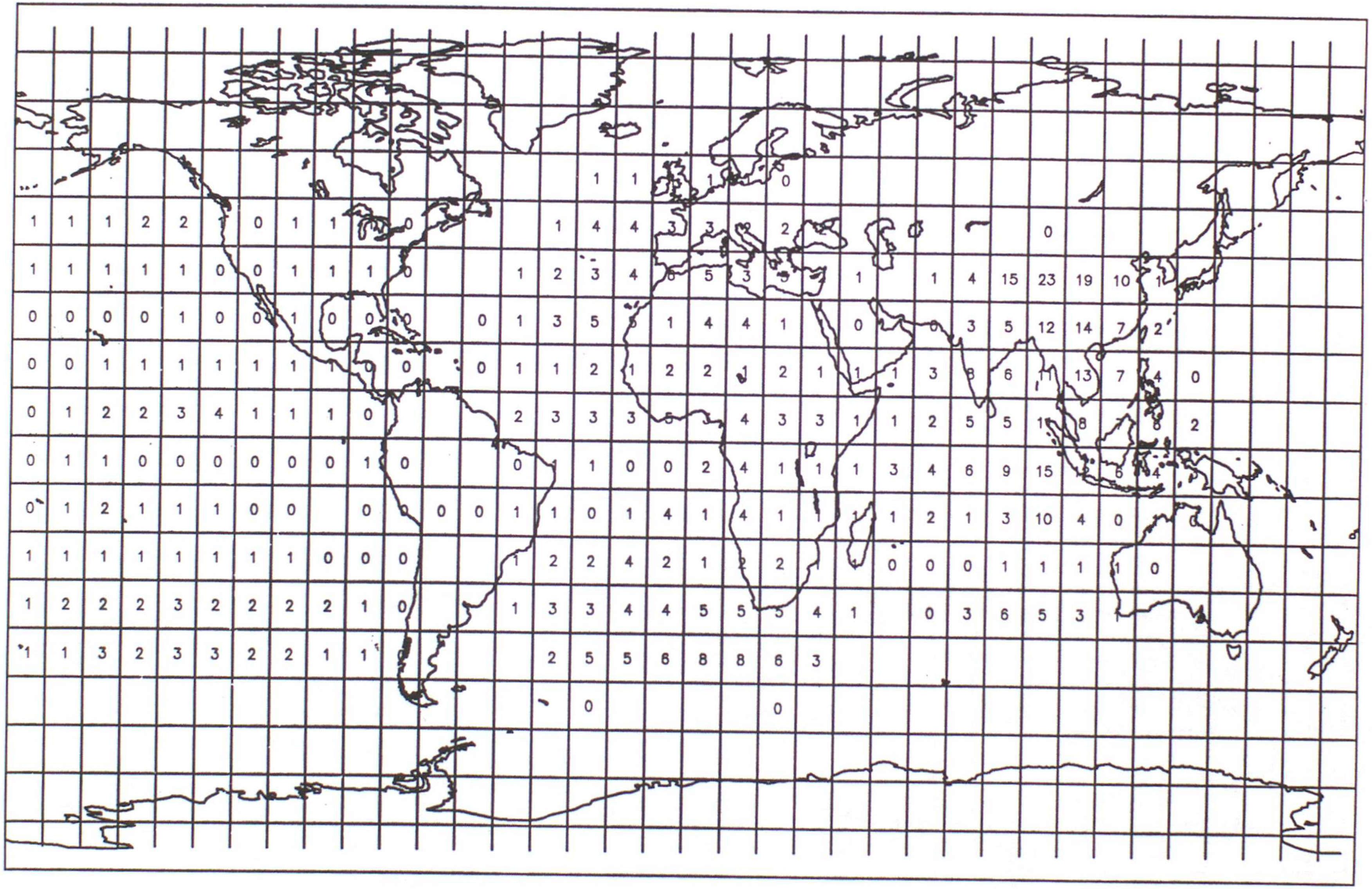
SATOBS : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 13
OCTOBER 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


-.3 .4
.2 .6 .4 .4 .6 -.3 -.4 -.1 1.2 .6 -.1 .5 -.1 -.1 .3
.4 -.2 -.7 -.1 -.3 -.9 .5 2.1 .2 .4 .6 .8 1.8 .9 .5 4.5 7.0 6.0 7.0 .4 .2 .2 .8 .7
-.1 -.9 -.8 -.6 -.3 .1 .6 -1.9 -2.3 -2.0 .5 1.0 .5 -.6 4.0 3.5 4.9 5.0 1.2 .1 1.1 .7 .2 -.1 .3 .0
-.2 -1.0 -.7 -.6 -.8 -.7 -1.0 -.2 1.3 .3 -.8 1.3 .7 .8 .2 4.1 4.2 3.8 4.1 2.2 1.6 .9 .5 1.2 -.1 -.1 .0 .2
.1 .3 -.4 .3 .5 .3 .6 .3 -.2 -.4 1.2 .7 .9 1.9 2.8 3.0 2.1 1.4 1.2 3.0 1.8 3.6 3.5 3.2 .6 1.0 .0 .3
.2 -.1 -.4 .3 .4 .0 -.3 -.3 -.5 -.2 .2 .1 -.1 .5 1.1 1.5 -.3 2.1 3.7 3.9 4.1 2.5 2.4 3.5 1.1 .9 2.2 .5 .2 .1
.2 -1.1 -.4 -.5 -.8 -.6 -.4 .2 .4 1.4 2.1 .2 -.2 -.1 .8 2.4 .6 .2 .1 1.8 2.2 1.6 .9 1.3 2.0 2.0 1.3 .9 1.1 .5 .6
.6 .6 .3 -.6 -1.0 -.9 -.9 -.2 -.7 -.1 -.3 .8 -.1 .2 .3 .5 .4 .1 .6 .3 .5 2.4 2.7 2.0 .8 .8 1.0 3.4 .7 .4 .6
.2 .3 .2 .3 .0 -.1 .1 .5 .2 .0 .6 .1 .5 .0 .2 -.1 -.1 .5 1.2 .6 .1 3.2 2.9 1.6 -.4 -.5 -.1 .4 -.4 -.3 .1 .0 .1
-.5 .4 .7 .3 .2 .4 .2 .7 .9 .7 .6 -.1 .4 .7 .0 .6 .5 .9 -.2 .9 .5 .1 .2 .2 .2
.7

SATOBS : RMS O–B VECTOR DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 14
OCTOBER 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT

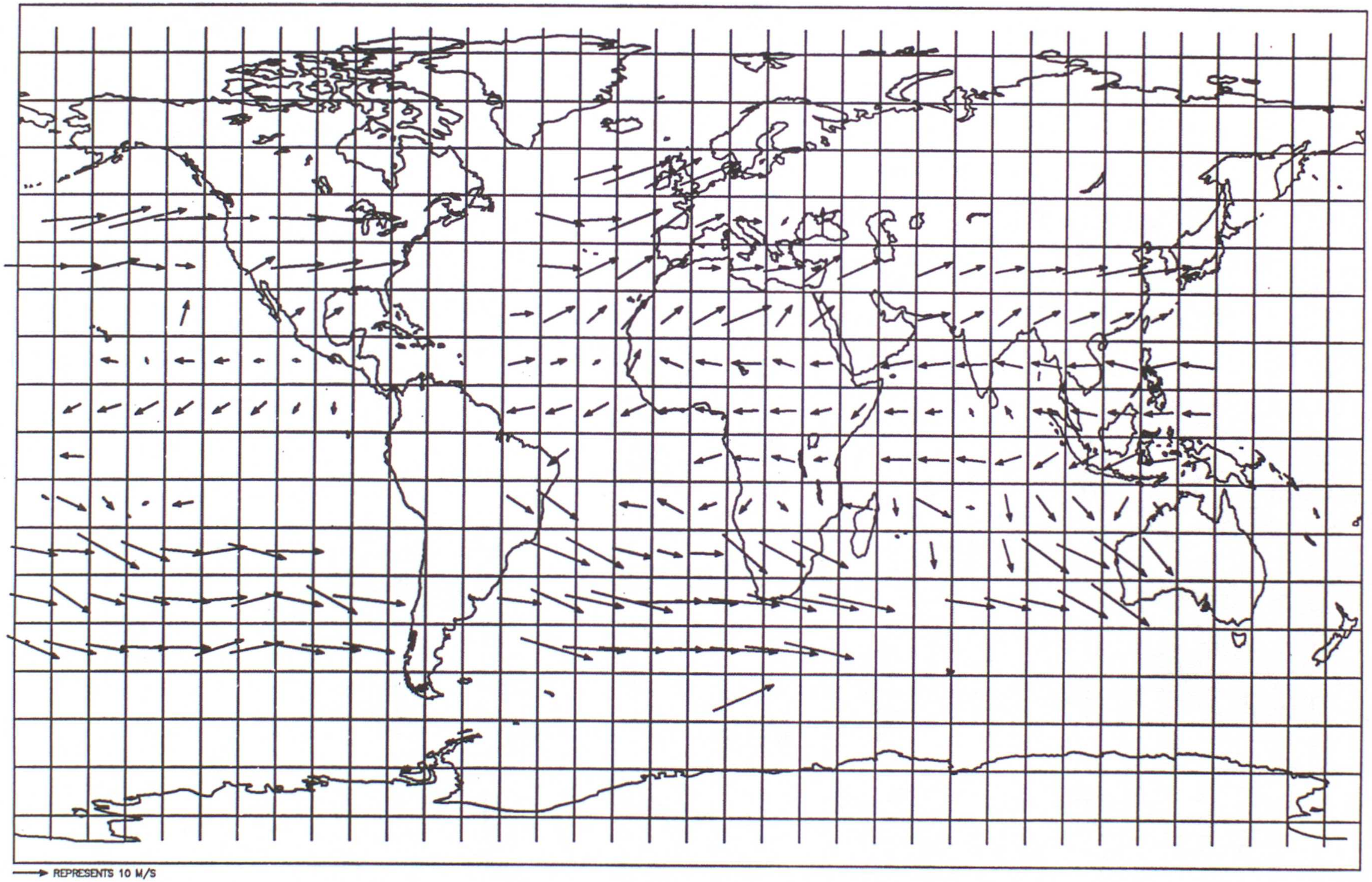

4 3
5 5 5 4 4 4 4 3 4 3 4 4 3 3 3
4 4 3 3 3 3 3 4 3 3 3 3 3 3 2 7 10 8 11 4 4 3 3 3
3 3 3 2 2 2 3 4 4 4 3 3 2 2 8 6 8 7 5 6 4 4 4 3 3 3
3 3 3 3 3 3 4 5 5 4 3 3 3 3 3 9 8 7 7 6 7 5 4 5 4 3 3 3
3 3 3 3 3 3 3 4 4 7 3 3 5 7 9 8 6 6 7 7 5 7 8 7 4 3 3 3
3 3 3 3 3 3 2 2 3 3 4 3 3 3 4 5 3 5 7 8 8 5 6 6 6 6 3 3 3 3
4 3 3 3 2 2 2 3 3 3 4 3 3 2 3 5 3 4 4 6 6 6 4 4 5 6 6 3 4 3 3
4 4 4 3 3 3 4 4 4 3 4 4 3 3 3 3 3 4 4 3 4 6 6 6 4 4 5 8 4 3 3
4 3 4 4 3 3 3 4 4 4 4 4 3 3 3 3 3 4 4 4 3 8 7 7 5 4 4 3 3 4 3 3 3
6 4 4 4 4 4 5 5 5 5 4 4 4 4 4 4 4 4 4 4 4 3 3 3 3
4

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 401 AND 700 HPA FIGURE 15
OCTOBER 1995


1 1 1 0
1 1 1 2 2 1 0 1 1 0 1 4 4 3 3 2 2 0
1 1 1 1 1 0 0 1 1 1 0 1 2 3 4 6 5 3 5 1 1 4 15 23 19 10 1
0 0 0 0 1 0 0 1 0 0 0 0 1 3 5 5 1 4 4 1 0 0 3 5 12 14 7 2
0 0 1 1 1 1 1 1 1 0 0 0 1 1 2 1 2 2 1 2 1 1 1 3 8 6 11 13 7 4 0
0 1 2 2 3 4 1 1 1 0 2 3 3 3 5 3 4 3 3 1 1 2 5 5 11 8 7 8 2
0 1 1 0 0 0 0 0 0 1 0 0 1 1 0 0 2 4 1 1 1 3 4 6 9 15 2 6 4
0 1 2 1 1 1 0 0 0 0 0 0 1 1 0 1 4 1 4 1 1 1 1 2 1 3 10 4 0 0
1 1 1 1 1 1 1 1 0 0 0 1 2 2 4 2 1 2 2 1 1 0 0 0 1 1 1 1 0
1 2 2 2 3 2 2 2 2 1 0 1 3 3 4 4 5 5 5 4 1 0 3 6 5 3 1
1 1 3 2 3 3 2 2 1 1 0 2 5 5 6 8 8 6 3
0 0

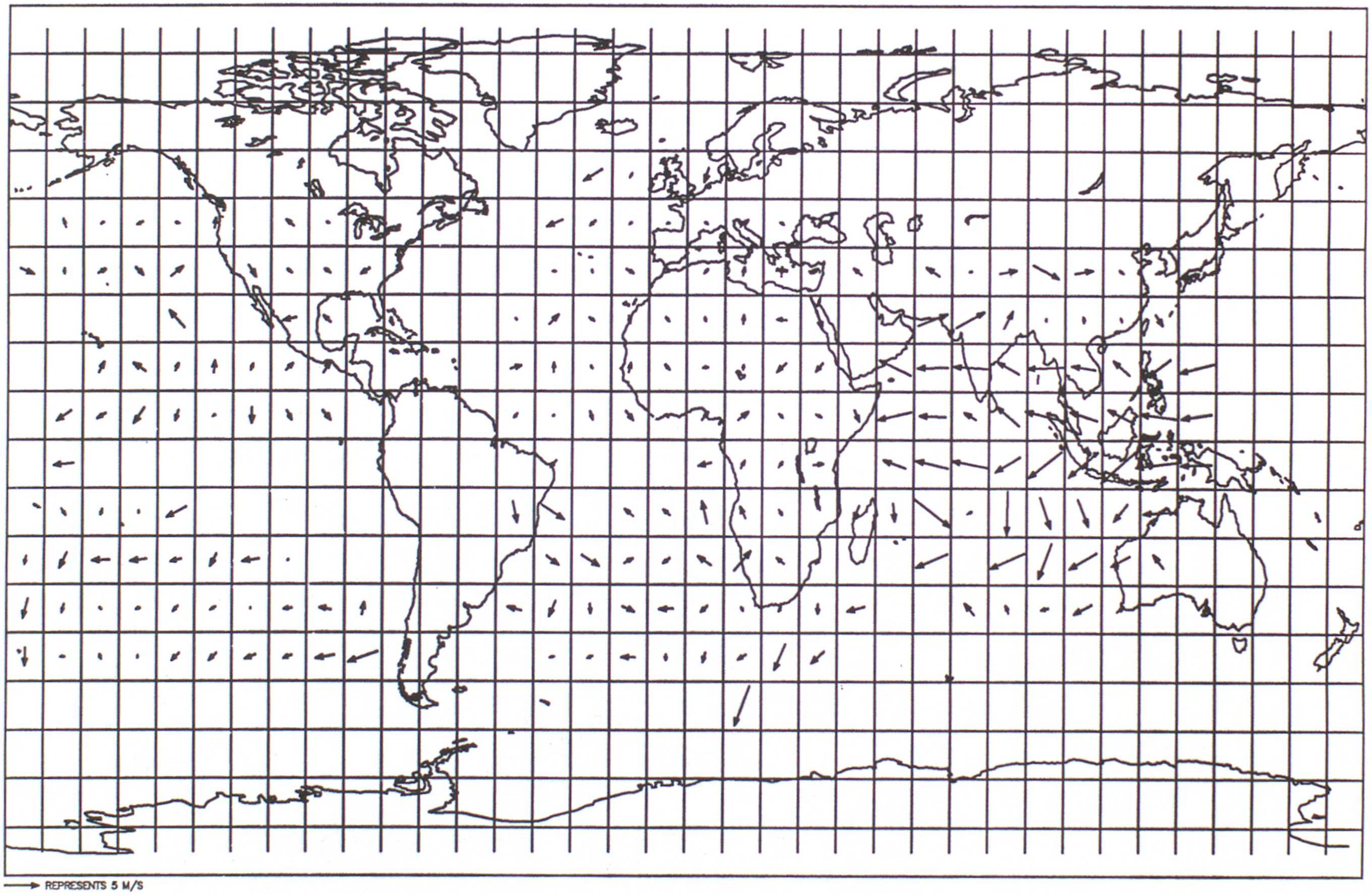
SATOB VECTOR MEAN WINDS BETWEEN 401–700 HPA
OCTOBER 1995
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 16

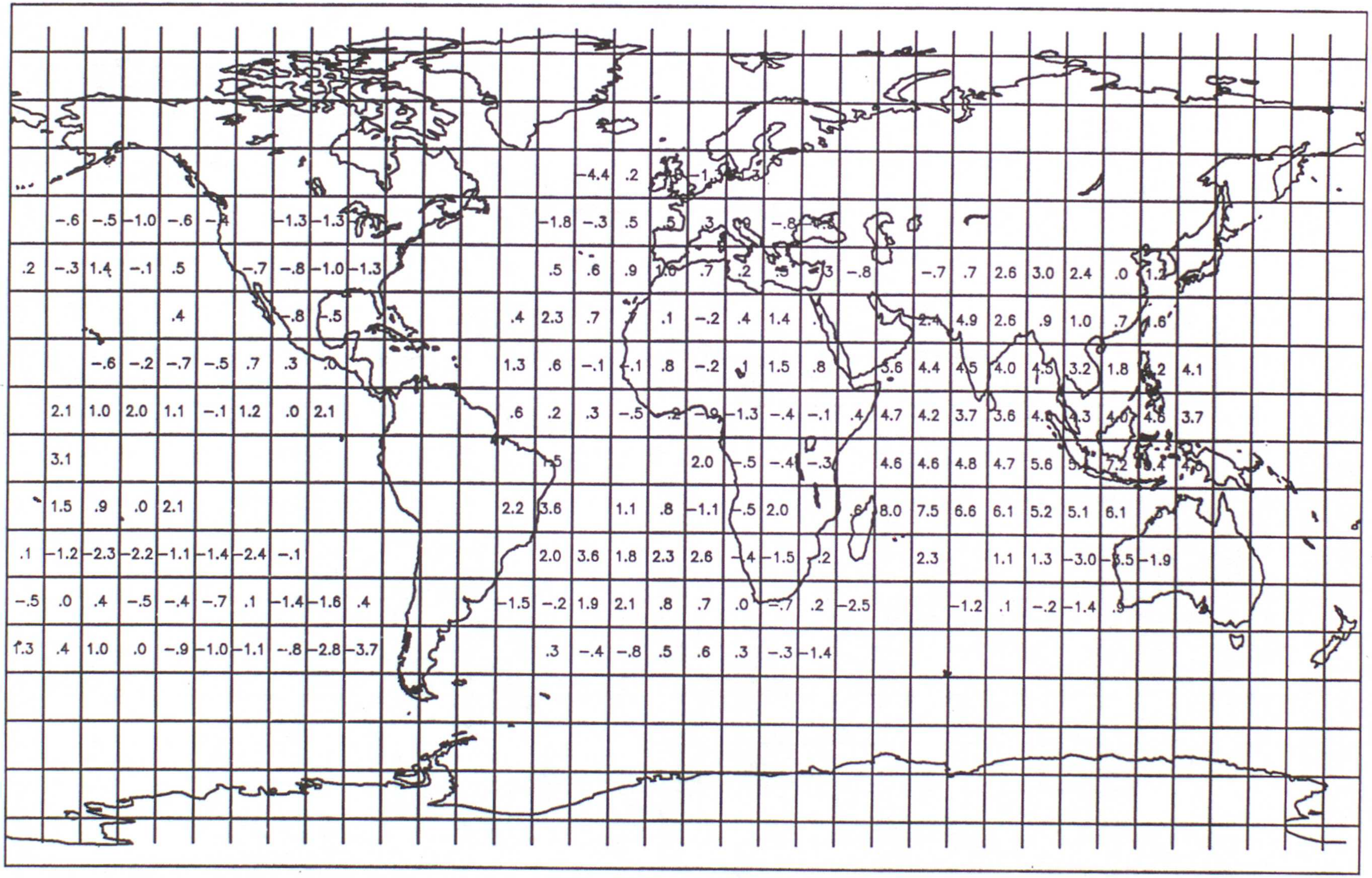

REPRESENTS 10 M/S

SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 401-700 HPA
OCTOBER 1995
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

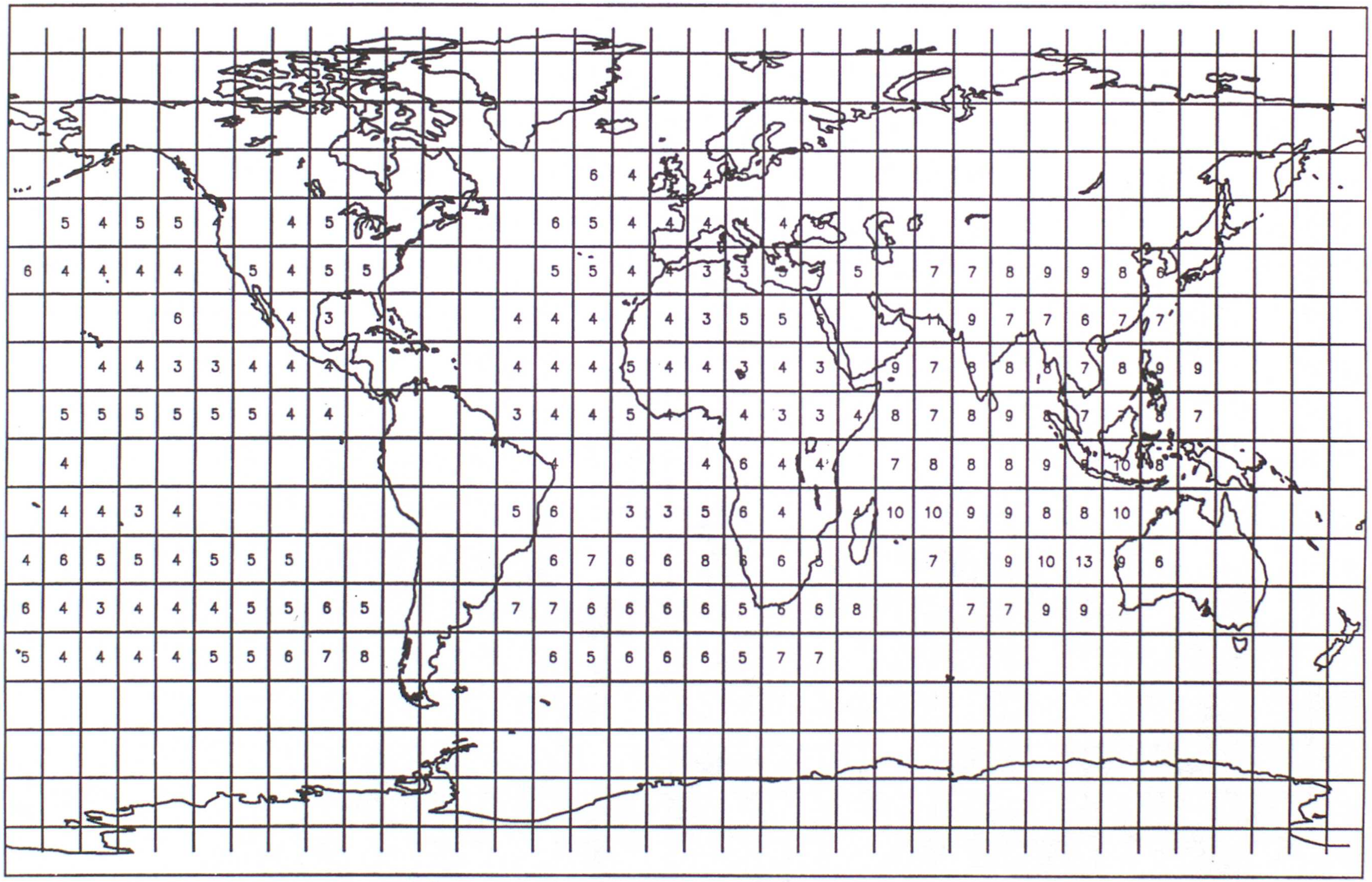
FIGURE 17



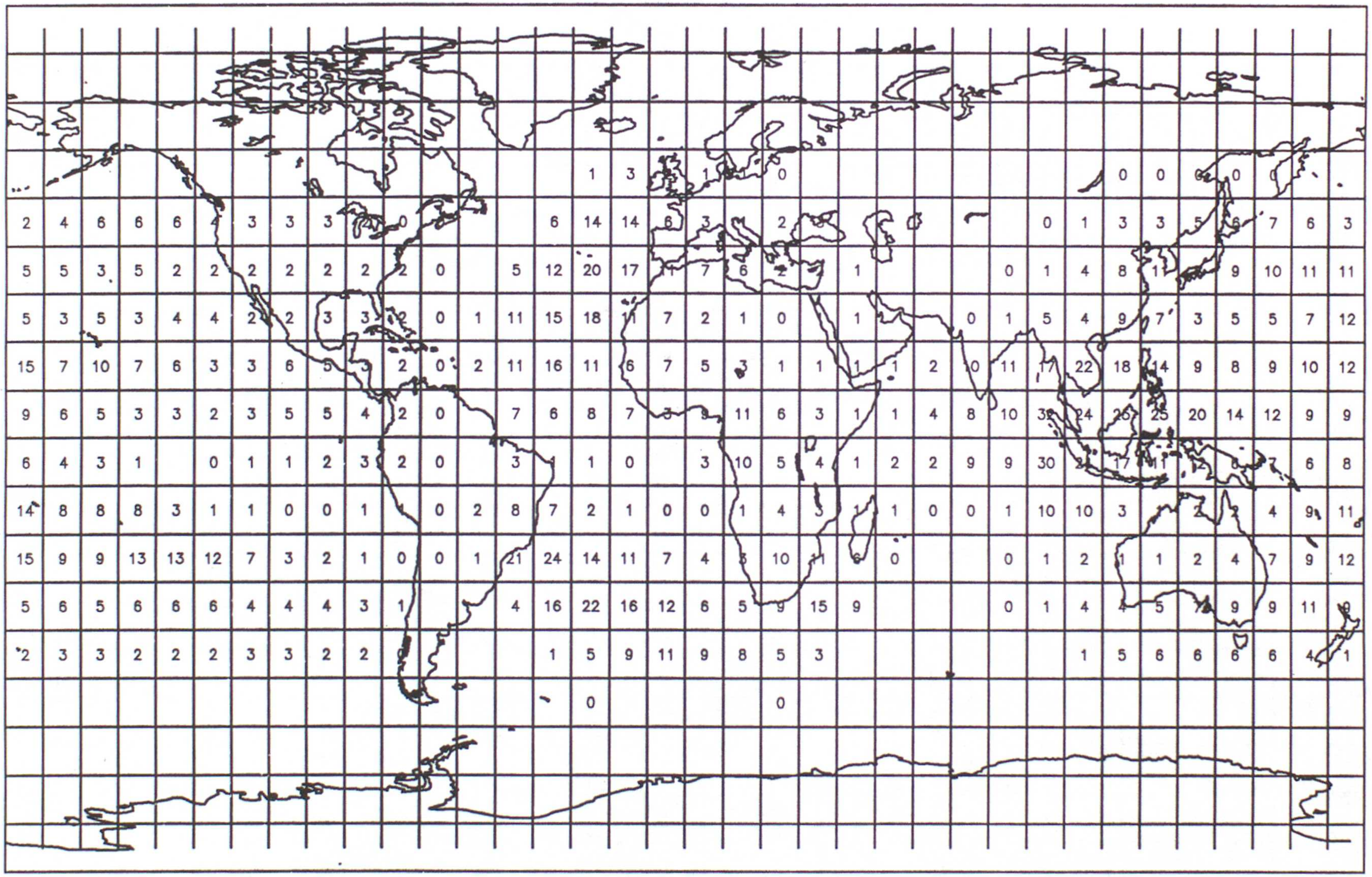
SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 18
OCTOBER 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS. ARE PRESENT


-4.4 .2 -1.3
-.6 -.5 -1.0 -.6 -.4 -1.3 -1.3 -1.8 -.3 .5 .5 .3 -.8
.2 -.3 1.4 -.1 .5 -.7 -.8 -1.0 -1.3 .5 .6 .9 1.0 .7 .2 .5 .3 -.8 -.7 .7 2.6 3.0 2.4 .0 1.2
.4 -.8 -.5 .4 2.3 .7 .7 .1 -.2 .4 1.4 2.4 4.9 2.6 .9 1.0 .7 1.6
-.6 -.2 -.7 -.5 .7 .3 .0 1.3 .6 -.1 .1 .8 -.2 .1 1.5 .8 3.6 4.4 4.5 4.0 4.5 3.2 1.8 .2 4.1
2.1 1.0 2.0 1.1 -.1 1.2 .0 2.1 .6 .2 .3 -.5 .2 -.9 -1.3 -.4 -.1 .4 4.7 4.2 3.7 3.6 4.6 4.3 4.0 4.6 3.7
3.1 1.5 2.0 -.5 -.4 -.3 4.6 4.6 4.8 4.7 5.6 7.2 .4
1.5 .9 .0 2.1 2.2 3.6 1.1 .8 -1.1 -.5 2.0 .6 8.0 7.5 6.6 6.1 5.2 5.1 6.1
.1 -1.2 -2.3 -2.2 -1.1 -1.4 -2.4 -.1 2.0 3.6 1.8 2.3 2.6 -.4 -1.5 .2 2.3 1.1 1.3 -3.0 -3.5 -1.9
-.5 .0 .4 -.5 -.4 -.7 .1 -1.4 -1.6 .4 -1.5 -.2 1.9 2.1 .8 .7 .0 -.7 .2 -2.5 -1.2 .1 -.2 -1.4 .9
1.3 .4 1.0 .0 -.9 -1.0 -1.1 -.8 -2.8 -3.7 .3 -.4 -.8 .5 .6 .3 -.3 -1.4

SATOBS : RMS O–B VECTOR DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 19
OCTOBER 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


6 4 4
5 4 5 5 4 4 5 6 5 4 4 4 4 4 6
6 4 4 4 4 5 4 5 5 5 5 4 4 3 3 5 5 5 7 7 8 9 9 8 6
6 4 3 4 4 4 4 4 3 5 5 5 11 9 7 7 6 7 7
4 4 3 3 4 4 4 4 4 4 5 4 4 3 4 3 9 7 8 8 8 7 8 9 9
5 5 5 5 5 5 4 4 3 4 4 5 4 4 3 3 4 8 7 8 9 8 7 7 8 7
4 4 4 6 4 4 7 8 8 8 9 9 10 8
4 4 3 4 5 6 3 3 5 6 4 4 10 10 9 9 8 8 10 9
4 6 5 5 4 5 5 5 6 7 6 6 8 6 6 5 7 9 10 13 9 6
6 4 3 4 4 4 5 5 6 5 7 7 6 6 6 6 5 6 6 8 7 7 9 9 7
5 4 4 4 4 5 5 6 7 8 6 5 6 6 6 5 7 7

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 101 AND 400 HPA FIGURE 20
OCTOBER 1995


1 3 1 0 0 0 0 0 0
2 4 6 6 6 4 3 3 3 4 0 6 14 14 6 3 2 3 0 1 3 3 5 6 7 6 3
5 5 3 5 2 2 2 2 2 2 2 0 5 12 20 17 1 7 6 2 2 1 0 1 4 8 11 9 10 11 11
5 3 5 3 4 4 2 2 3 3 2 0 1 11 15 18 11 7 2 1 0 1 0 1 5 4 9 7 3 5 5 7 12
15 7 10 7 6 3 3 6 5 3 2 0 2 11 16 11 6 7 5 3 1 1 1 1 2 10 11 17 22 18 14 9 8 9 10 12
9 6 5 3 3 2 3 5 5 4 2 0 7 6 8 7 3 9 11 6 3 1 1 4 8 10 32 24 26 25 20 14 12 9 9
6 4 3 1 0 1 1 2 3 2 0 3 1 1 0 3 10 5 4 1 2 2 9 9 30 2 17 11 12 8 7 6 8
14 8 8 8 3 1 1 0 0 1 1 0 2 8 7 2 1 0 0 1 4 3 1 1 0 0 1 10 10 3 1 2 2 4 9 11
15 9 9 13 13 12 7 3 2 1 0 0 1 21 24 14 11 7 4 3 10 11 6 0 0 1 2 1 1 2 4 7 9 12
5 6 5 6 6 6 4 4 4 3 1 4 16 22 16 12 6 5 9 15 9 0 1 4 4 5 7 9 9 11 9
2 3 3 2 2 2 3 3 2 2 0 1 5 9 11 9 8 5 3 1 5 6 6 6 6 4 1
0 0

SATOB VECTOR MEAN WINDS BETWEEN 101–400 HPA
OCTOBER 1995
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 21

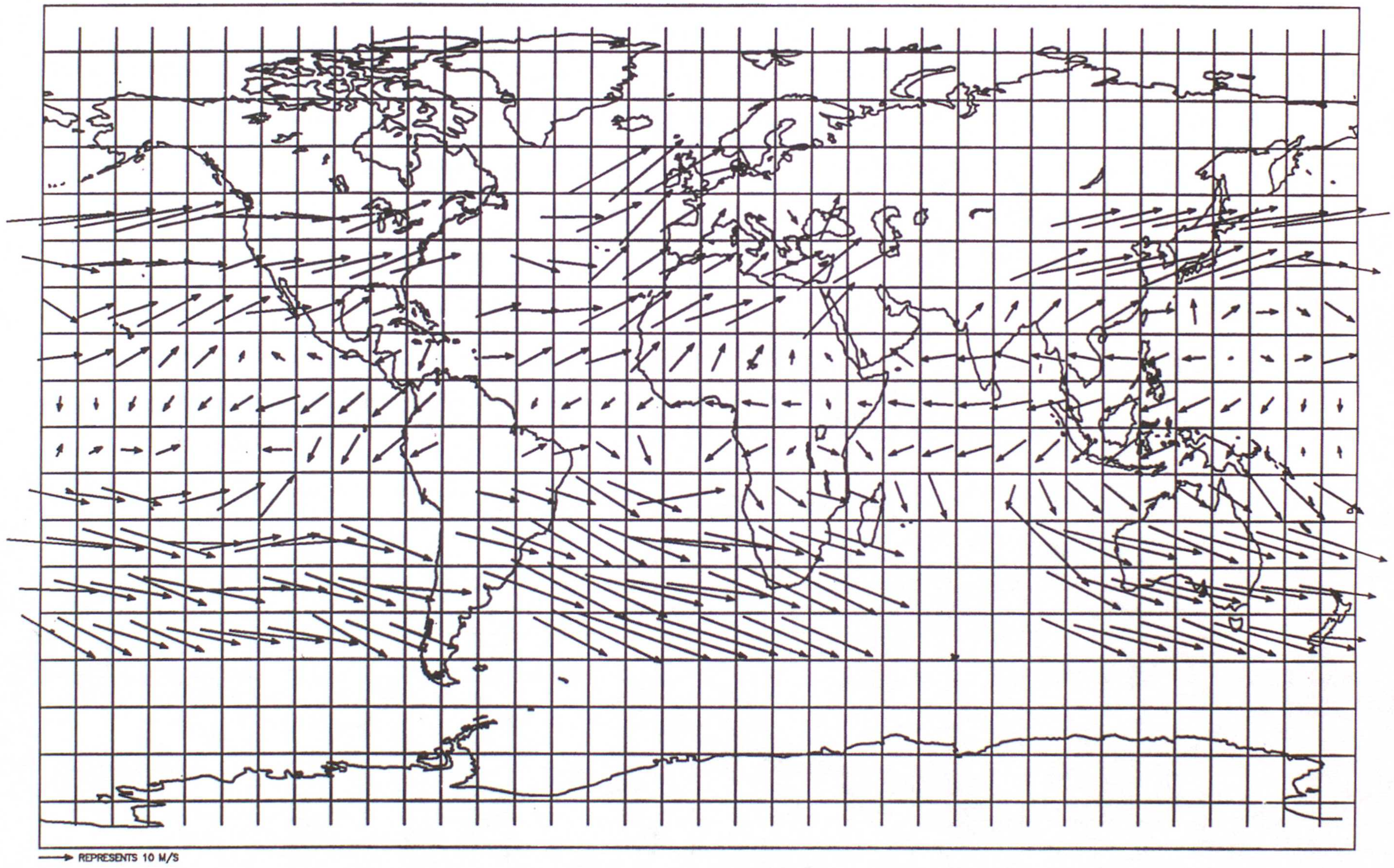
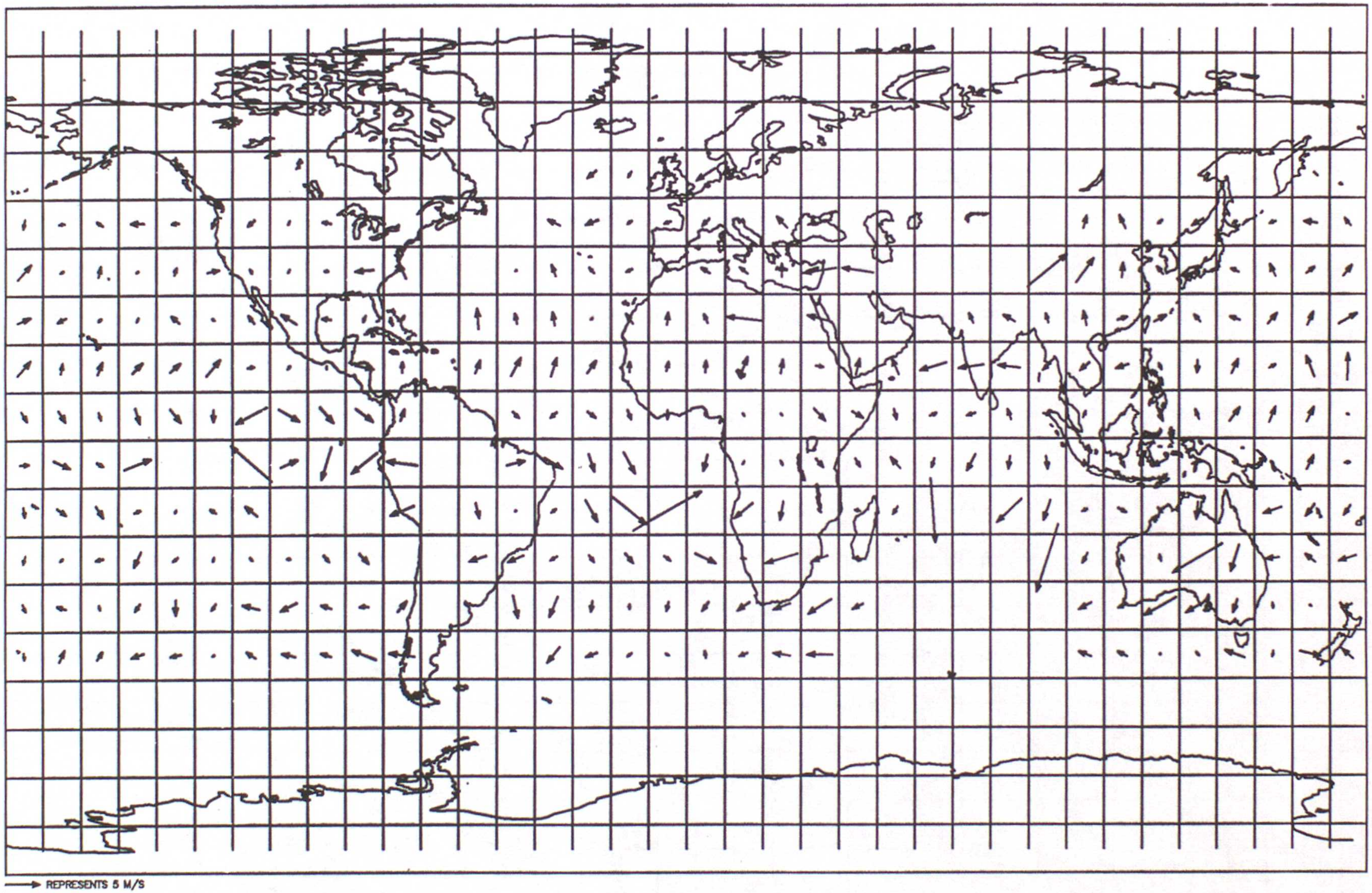
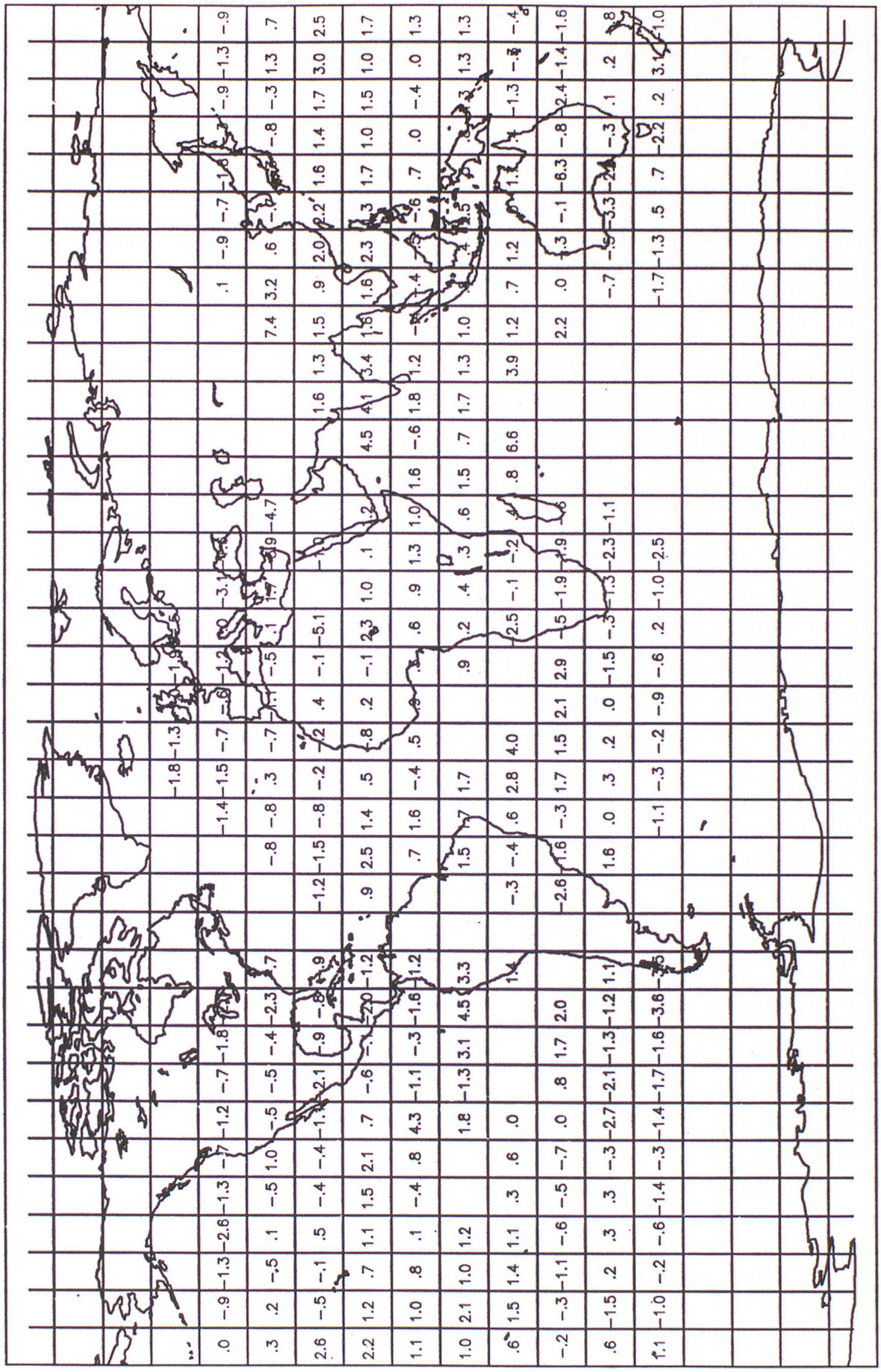

REPRESENTS 10 M/S

FIGURE 22

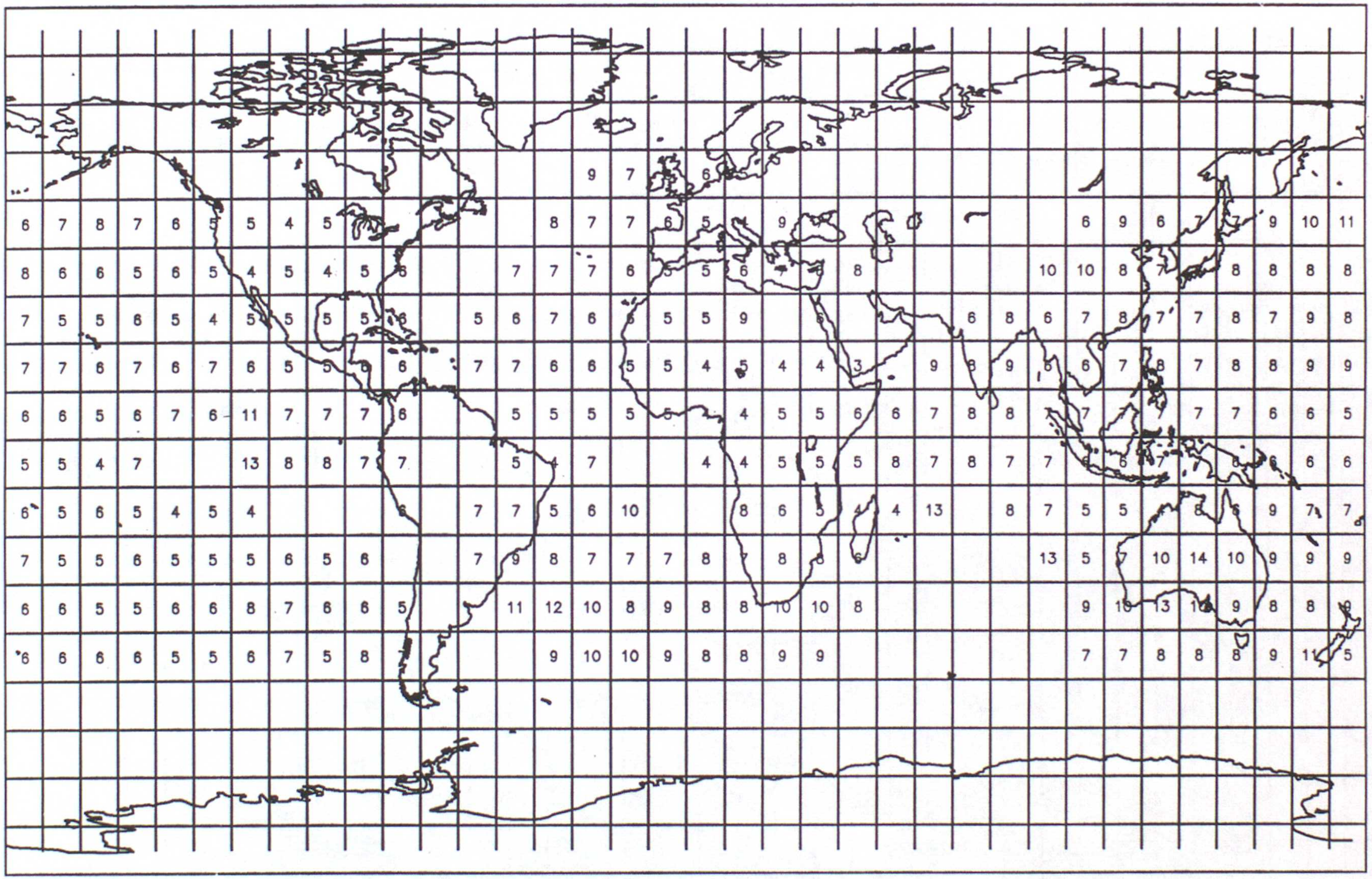
SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 101–400 HPA
OCTOBER 1995
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT



SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 23
OCTOBER 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT



SATOBS : RMS O–B VECTOR DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 24
OCTOBER 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


9 7 6
6 7 8 7 6 5 5 4 5 8 7 7 6 5 4 9 6 9 6 7 7 9 10 11
8 6 6 5 6 5 4 5 4 5 6 7 7 7 6 5 5 6 7 8 10 10 8 7 8 8 8 8
7 5 5 6 5 4 5 5 5 5 6 5 6 7 6 6 5 5 9 6 8 6 7 8 7 7 8 7 9 8
7 7 6 7 6 7 6 5 5 6 6 7 7 6 6 5 5 4 5 4 4 3 9 8 9 6 6 7 8 7 8 8 9 9
6 6 5 6 7 6 11 7 7 7 6 5 5 5 5 5 4 5 5 6 6 7 8 8 7 7 7 7 7 6 6 5
5 5 4 7 13 8 8 7 7 5 4 7 4 4 5 5 5 8 7 8 7 7 6 6 7 6 6 6
6 5 6 5 4 5 4 6 7 7 5 6 10 8 6 5 4 4 13 8 7 5 5 6 6 6 9 7 7
7 5 5 6 5 5 5 6 5 6 7 9 8 7 7 7 8 7 8 6 6 13 5 7 10 14 10 9 9 9
6 6 5 5 6 6 8 7 6 6 5 11 12 10 8 9 8 8 10 10 8 9 10 13 10 9 8 8 9
6 6 6 6 5 5 6 7 5 8 7 9 10 10 9 8 8 9 9 7 7 8 8 8 9 11 5

MONITORING OF SATELLITE TEMPERATURES

MONITORING CENTRE: BRACKNELL

MONTH:October, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from NOAA-12, NOAA-14 500 km.

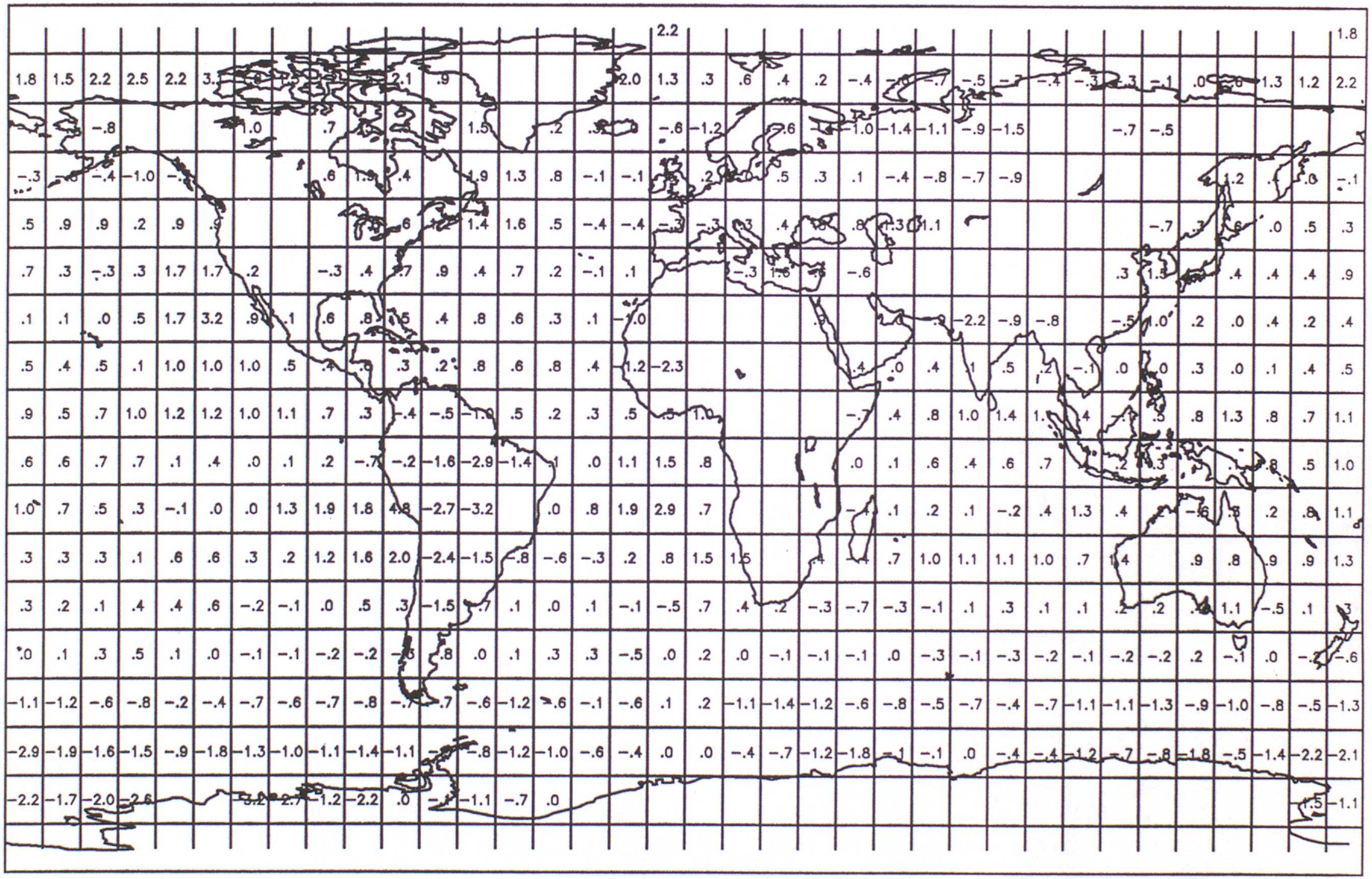
Standard of comparison :Background field from Bracknell global model.

Selection Criteria :All SATEM soundings where number of observations > 30.

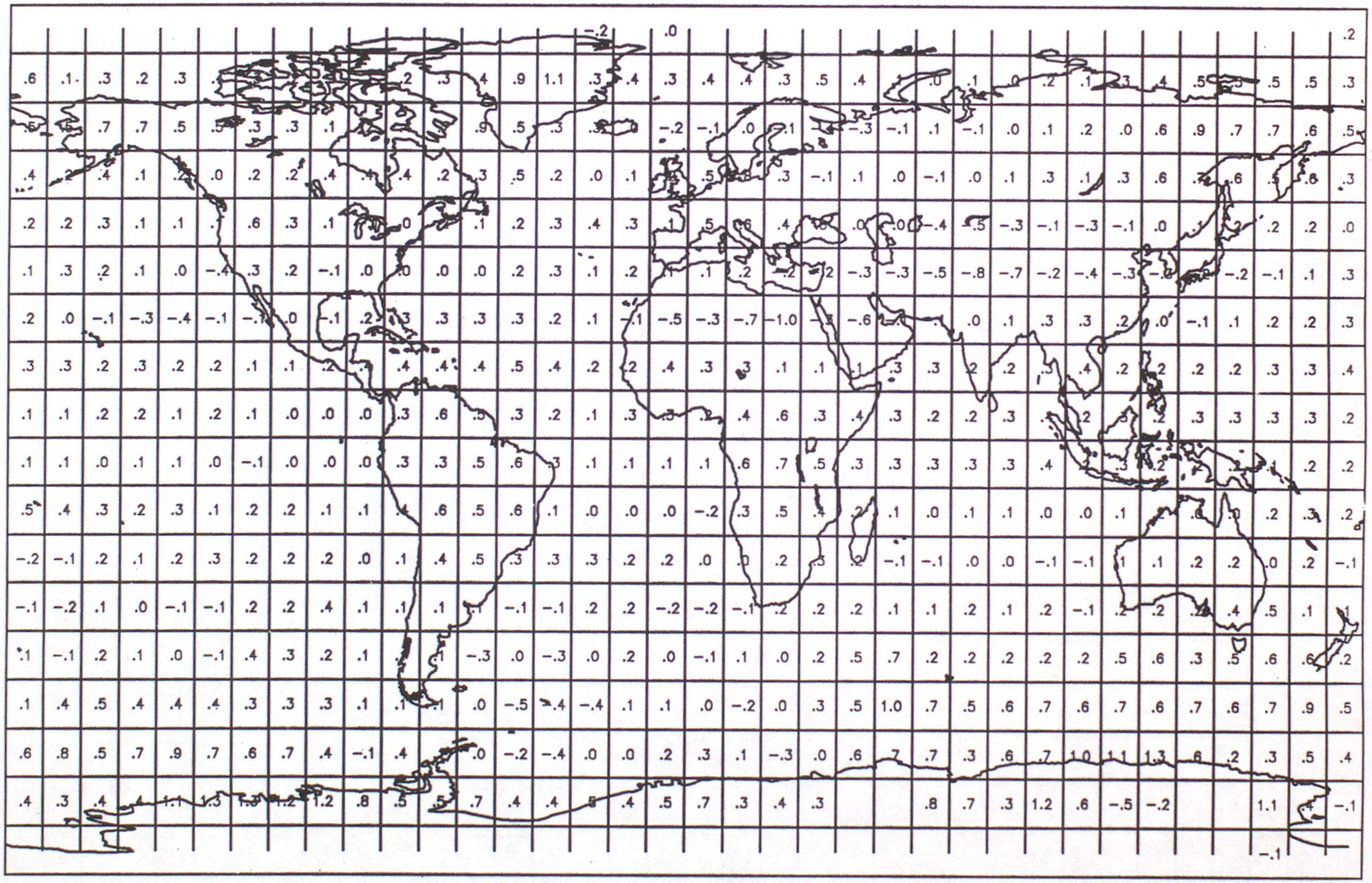
Data Extracted :Layer:850 - 1000 hPa
100 - 300 hPa
30 - 50 hPa

:Mean observation minus background temperature differences

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
OCTOBER 1995 FIGURE 25
NOAA–12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

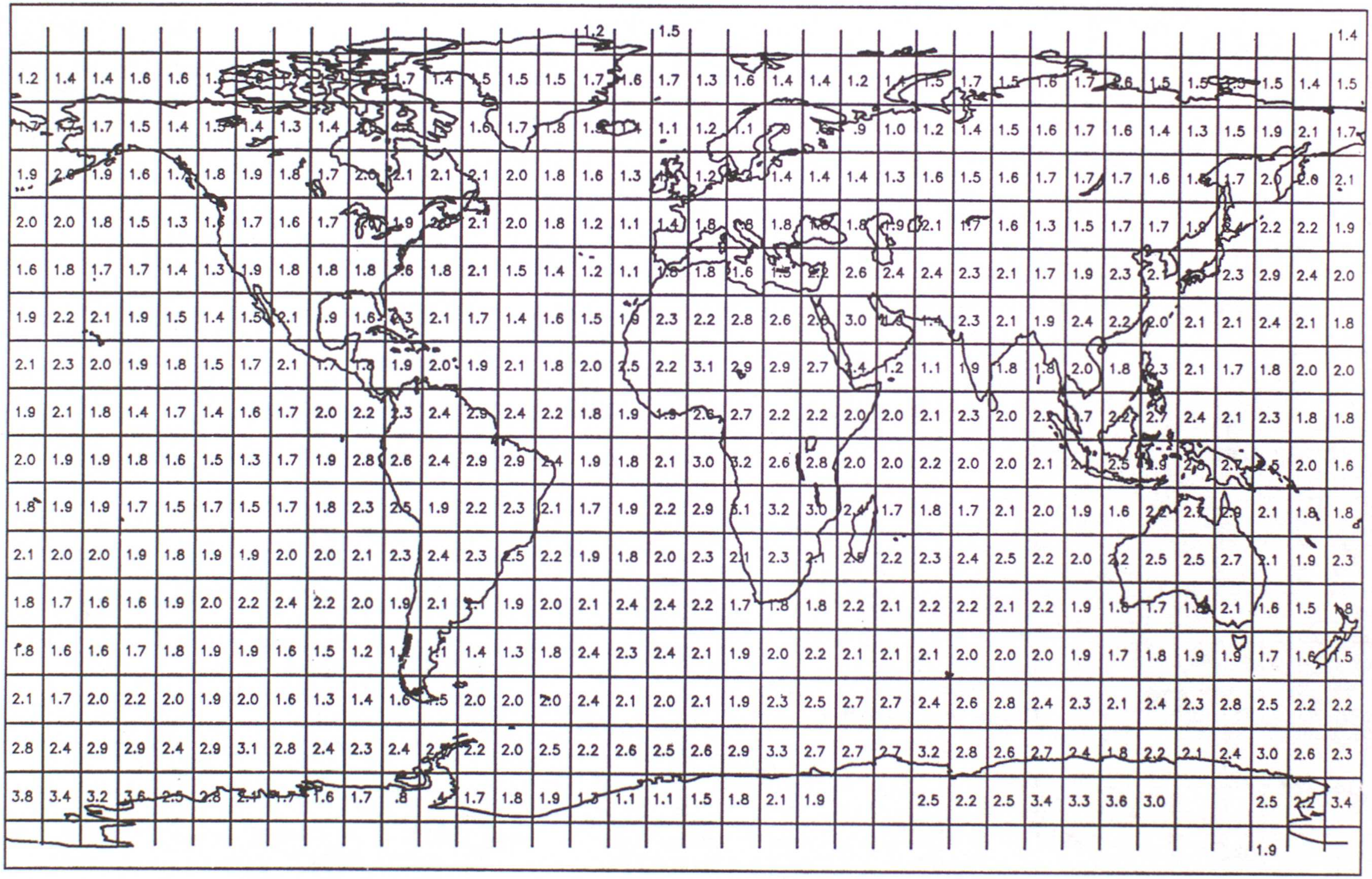

2.2 1.8
1.8 1.5 2.2 2.5 2.2 3.1 2.1 .9 2.0 1.3 .3 .6 .4 .2 –.4 –.7 –.5 –.4 –.3 –.1 .0 1.3 1.2 2.2
–.8 1.0 .7 1.5 .2 –.6 –1.2 .6 –1.0 –1.4 –1.1 –.9 –1.5 –.7 –.5
–.3 –.4 –1.0 .6 .4 1.9 1.3 .8 –.1 –.1 .2 .5 .3 .1 –.4 –.8 –.7 –.9 1.2 –.1
.5 .9 .9 .2 .9 .6 1.4 1.6 .5 –.4 –.4 –.3 –.3 .3 .4 .8 1.3 1.1 –.7 .0 .5 .3
.7 .3 –.3 .3 1.7 1.7 .2 –.3 .4 .7 .9 .4 .7 .2 –.1 .1 –.3 –.6 .3 .4 .4 .4 .9
.1 .1 .0 .5 1.7 3.2 .9 .1 .6 .8 .5 .4 .8 .6 .3 .1 –1.0 –2.2 –.9 –.8 –.5 1.0 .2 .0 .4 .2 .4
.5 .4 .5 .1 1.0 1.0 1.0 .5 .3 .2 .8 .6 .8 .4 –1.2 –2.3 .4 .0 .4 .1 .5 –.1 .0 .0 .3 .0 .1 .4 .5
.9 .5 .7 1.0 1.2 1.2 1.0 1.1 .7 .3 –.4 –.5 –1.0 .5 .2 .3 .5 .5 1.0 –.7 .4 .8 1.0 1.4 1.1 .4 .5 .8 1.3 .8 .7 1.1
.6 .6 .7 .7 .1 .4 .0 .1 .2 –.7 –.2 –1.6 –2.9 –1.4 .1 .0 1.1 1.5 .8 .0 .1 .6 .4 .6 .7 .2 .3 .8 .5 1.0
1.0 .7 .5 .3 –.1 .0 .0 1.3 1.9 1.8 4.8 –2.7 –3.2 .0 .8 1.9 2.9 .7 –.4 .1 .2 .1 –.2 .4 1.3 .4 –.6 .3 .2 .8 1.1
.3 .3 .3 .1 .6 .6 .3 .2 1.2 1.6 2.0 –2.4 –1.5 .8 –.6 –.3 .2 .8 1.5 1.5 .4 .7 1.0 1.1 1.1 1.0 .7 1.4 .9 .8 .9 .9 1.3
.3 .2 .1 .4 .4 .6 –.2 –.1 .0 .5 .3 –1.5 .7 .1 .0 .1 –.1 –.5 .7 .4 .2 –.3 –.7 –.3 –.1 .1 .3 .1 .1 .2 .2 .4 1.1 –.5 .1 .3
.0 .1 .3 .5 .1 .0 –.1 –.1 –.2 –.2 –.6 .8 .0 .1 .3 .3 –.5 .0 .2 .0 –.1 –.1 –.1 .0 –.3 –.1 –.3 –.2 –.1 –.2 –.2 .2 –.1 .0 –.2 –.6
–1.1 –1.2 –.6 –.8 –.2 –.4 –.7 –.6 –.7 –.8 –.7 –.7 –.6 –1.2 –.6 –.1 –.6 .1 .2 –1.1 –1.4 –1.2 –.6 –.8 –.5 –.7 –.4 –.7 –1.1 –1.1 –1.3 –.9 –1.0 –.8 –.5 –1.3
–2.9 –1.9 –1.6 –1.5 –.9 –1.8 –1.3 –1.0 –1.1 –1.4 –1.1 –.8 –1.2 –1.0 –.6 –.4 .0 .0 –.4 –.7 –1.2 –1.8 –.1 –.1 .0 –.4 –.4 –1.2 –.7 –.8 –1.8 –.5 –1.4 –2.2 –2.1
–2.2 –1.7 –2.0 –2.6 –3.2 –2.7 –1.2 –2.2 .0 –1.1 –.7 .0 –1.5 –1.1

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
OCTOBER 1995 FIGURE 26
NOAA–12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

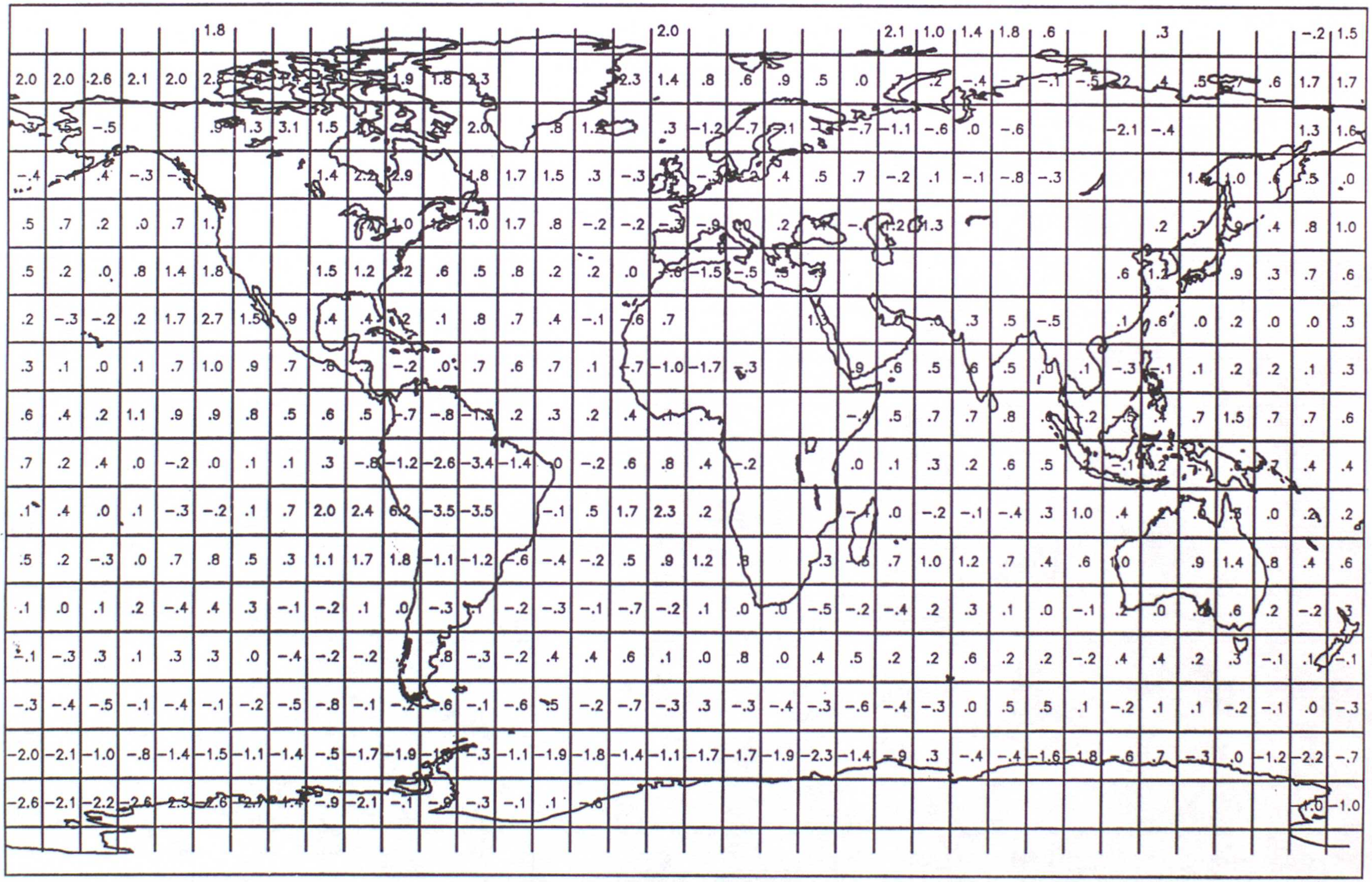


500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
OCTOBER 1995
NOAA–12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 27

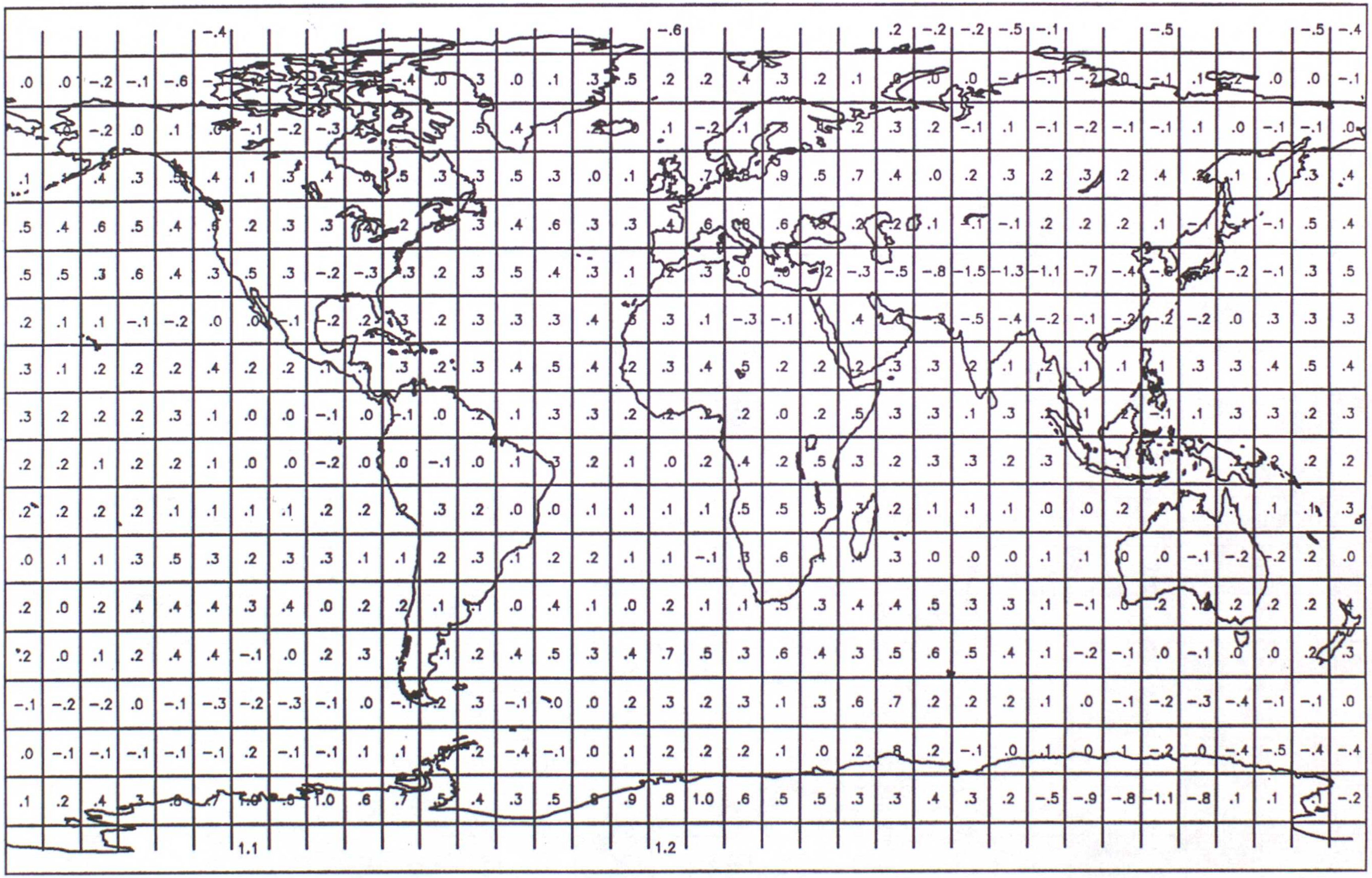

1.2 1.5 1.4
1.2 1.4 1.4 1.6 1.6 1.7 1.4 1.5 1.5 1.5 1.7 1.6 1.7 1.3 1.6 1.4 1.4 1.2 1.4 1.5 1.7 1.5 1.6 1.7 2.6 1.5 1.5 1.5 1.4 1.5
1.7 1.5 1.4 1.5 1.4 1.3 1.4 1.6 1.7 1.8 1.9 1.1 1.2 1.1 .9 .9 1.0 1.2 1.4 1.5 1.6 1.7 1.6 1.4 1.3 1.5 1.9 2.1 1.7
1.9 2.0 1.9 1.6 1.7 1.8 1.9 1.8 1.7 2.0 2.1 2.1 2.1 2.0 1.8 1.6 1.3 1.2 1.4 1.4 1.4 1.3 1.6 1.5 1.6 1.7 1.7 1.7 1.6 1.6 1.7 2.0 2.0 2.1
2.0 2.0 1.8 1.5 1.3 1.6 1.7 1.6 1.7 1.9 2.0 2.1 2.0 1.8 1.2 1.1 1.4 1.8 1.8 1.8 1.6 1.8 1.9 2.1 1.7 1.6 1.3 1.5 1.7 1.7 1.9 2.2 2.2 1.9
1.6 1.8 1.7 1.7 1.4 1.3 1.9 1.8 1.8 1.8 1.6 1.8 2.1 1.5 1.4 1.2 1.1 1.6 1.8 1.6 1.5 2.2 2.6 2.4 2.4 2.3 2.1 1.7 1.9 2.3 2.1 2.3 2.9 2.4 2.0
1.9 2.2 2.1 1.9 1.5 1.4 1.5 2.1 .9 1.6 2.3 2.1 1.7 1.4 1.6 1.5 1.9 2.3 2.2 2.8 2.6 2.9 3.0 1.4 1.4 2.3 2.1 1.9 2.4 2.2 2.0 2.1 2.1 2.4 2.1 1.8
2.1 2.3 2.0 1.9 1.8 1.5 1.7 2.1 1.7 1.8 1.9 2.0 1.9 2.1 1.8 2.0 2.5 2.2 3.1 2.9 2.9 2.7 2.4 1.2 1.1 1.9 1.8 1.8 2.0 1.8 2.3 2.1 1.7 1.8 2.0 2.0
1.9 2.1 1.8 1.4 1.7 1.4 1.6 1.7 2.0 2.2 2.3 2.4 2.9 2.4 2.2 1.8 1.9 1.9 2.6 2.7 2.2 2.2 2.0 2.0 2.1 2.3 2.0 2.5 1.7 2.2 2.7 2.4 2.1 2.3 1.8 1.8
2.0 1.9 1.9 1.8 1.6 1.5 1.3 1.7 1.9 2.8 2.6 2.4 2.9 2.9 2.4 1.9 1.8 2.1 3.0 3.2 2.6 2.8 2.0 2.0 2.2 2.0 2.0 2.1 2.1 2.5 1.9 2.5 2.7 2.5 2.0 1.6
1.8 1.9 1.9 1.7 1.5 1.7 1.5 1.7 1.8 2.3 2.5 1.9 2.2 2.3 2.1 1.7 1.9 2.2 2.9 3.1 3.2 3.0 2.4 1.7 1.8 1.7 2.1 2.0 1.9 1.6 2.2 2.7 2.9 2.1 1.8 1.8
2.1 2.0 2.0 1.9 1.8 1.9 1.9 2.0 2.0 2.1 2.3 2.4 2.3 2.5 2.2 1.9 1.8 2.0 2.3 2.1 2.3 2.1 2.6 2.2 2.3 2.4 2.5 2.2 2.0 2.2 2.5 2.5 2.7 2.1 1.9 2.3
1.8 1.7 1.6 1.6 1.9 2.0 2.2 2.4 2.2 2.0 1.9 2.1 2.1 1.9 2.0 2.1 2.4 2.4 2.2 1.7 1.8 1.8 2.2 2.1 2.2 2.2 2.1 2.2 1.9 1.6 1.7 1.8 2.1 1.6 1.5 1.8
1.8 1.6 1.6 1.7 1.8 1.9 1.9 1.6 1.5 1.2 1.1 1.1 1.4 1.3 1.8 2.4 2.3 2.4 2.1 1.9 2.0 2.2 2.1 2.1 2.1 2.0 2.0 2.0 1.9 1.7 1.8 1.9 1.9 1.7 1.6 1.5
2.1 1.7 2.0 2.2 2.0 1.9 2.0 1.6 1.3 1.4 1.6 1.5 2.0 2.0 2.0 2.4 2.1 2.0 2.1 1.9 2.3 2.5 2.7 2.7 2.4 2.6 2.8 2.4 2.3 2.1 2.4 2.3 2.8 2.5 2.2 2.2
2.8 2.4 2.9 2.9 2.4 2.9 3.1 2.8 2.4 2.3 2.4 2.2 2.2 2.0 2.5 2.2 2.6 2.5 2.6 2.9 3.3 2.7 2.7 2.7 3.2 2.8 2.6 2.7 2.4 1.8 2.2 2.1 2.4 3.0 2.6 2.3
3.8 3.4 3.2 3.6 2.5 2.8 2.4 1.7 1.6 1.7 .8 1.7 1.8 1.9 1.3 1.1 1.1 1.5 1.8 2.1 1.9 2.5 2.2 2.5 3.4 3.3 3.6 3.0 2.5 2.2 3.4
1.9

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
OCTOBER 1995 FIGURE 28
NOAA–14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
OCTOBER 1995
NOAA–14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 29


-.4 -.6 .2 -.2 -.2 -.5 -.1 -.5 -.5 -.4
.0 .0 -.2 -.1 -.6 -.4 .0 .3 .0 .1 .3 .5 .2 .2 .4 .3 .2 .1 .0 .0 .0 -.1 -.1 -.2 .0 -.1 .1 .2 .0 .0 -.1
.0 -.2 .0 .1 .0 -.1 -.2 -.3 .5 .4 .1 .2 .0 .1 -.2 .1 .3 .5 .2 .3 .2 -.1 .1 -.1 -.2 -.1 -.1 .1 .0 -.1 -.1 .0
.1 .1 .4 .3 .5 .4 .1 .3 .4 .0 .5 .3 .3 .5 .3 .0 .1 .7 .8 .9 .5 .7 .4 .0 .2 .3 .2 .3 .2 .4 .2 .1 .3 .4
.5 .4 .6 .5 .4 .5 .2 .3 .3 .4 .2 .3 .4 .6 .3 .3 .4 .6 .8 .6 .5 .2 .2 .1 -.1 -.1 .2 .2 .2 .1 -.1 -.1 -.1 .5 .4
.5 .5 .3 .6 .4 .3 .5 .3 -.2 -.3 .3 .2 .3 .5 .4 .3 .1 .2 .3 .0 .0 -.2 -.3 -.5 -.8 -1.5 -1.3 -1.1 -.7 -.4 -.6 -.2 -.1 .3 .5
.2 .1 .1 -.1 -.2 .0 .0 -.1 -.2 .2 .3 .2 .3 .3 .3 .4 .3 .3 .1 -.3 -.1 .1 .4 -.3 -.5 -.4 -.2 -.1 -.2 -.2 -.2 .0 .3 .3 .3
.3 .1 .2 .2 .2 .4 .2 .2 .1 .4 .3 .2 .3 .4 .5 .4 .2 .3 .4 .5 .2 .2 .2 .3 .3 .2 .1 .2 .1 .1 .1 .3 .3 .4 .5 .4
.3 .2 .2 .2 .3 .1 .0 .0 -.1 .0 -.1 .0 .2 .1 .3 .3 .2 .2 .2 .2 .0 .2 .5 .3 .3 .1 .3 .2 .1 .2 -.1 .1 .3 .3 .2 .3
.2 .2 .1 .2 .2 .1 .0 .0 -.2 .0 .0 -.1 .0 .1 .3 .2 .1 .0 .2 .4 .2 .5 .3 .2 .3 .3 .2 .3 .1 .1 .1 .1 .2 .2 .2 .2
.2 .2 .2 .2 .1 .1 .1 .1 .2 .2 .2 .3 .2 .0 .0 .1 .1 .1 .1 .5 .5 .5 .3 .2 .1 .1 .1 .0 .0 .2 .2 .2 .1 .1 .1 .3
.0 .1 .1 .3 .5 .3 .2 .3 .3 .1 .1 .2 .3 .1 .2 .2 .1 .1 -.1 .3 .6 .4 .4 .3 .0 .0 .0 .1 .1 .0 .0 -.1 -.2 -.2 .2 .0
.2 .0 .2 .4 .4 .4 .3 .4 .0 .2 .2 .1 .1 .0 .4 .1 .0 .2 .1 .1 .5 .3 .4 .4 .5 .3 .3 .1 -.1 .0 .2 .1 .2 .2 .2 .4
.2 .0 .1 .2 .4 .4 -.1 .0 .2 .3 .1 .1 .2 .4 .5 .3 .4 .7 .5 .3 .6 .4 .3 .5 .6 .5 .4 .1 -.2 -.1 .0 -.1 .0 .0 .2 .3
-.1 -.2 -.2 .0 -.1 -.3 -.2 -.3 -.1 .0 -.1 .2 .3 -.1 .0 .0 .2 .3 .2 .3 .1 .3 .6 .7 .2 .2 .2 .1 .0 -.1 -.2 -.3 -.4 -.1 -.1 .0
.0 -.1 -.1 -.1 -.1 -.1 .2 -.1 -.1 .1 .1 .2 -.4 -.1 .0 .1 .2 .2 .2 .1 .0 .2 .8 .2 -.1 .0 .1 .0 .1 -.2 .0 -.4 -.5 -.4 -.4
.1 .2 .4 .3 .6 .7 1.0 .8 1.0 .6 .7 .5 .4 .3 .5 .8 .9 .8 1.0 .6 .5 .5 .3 .3 .4 .3 .2 -.5 -.9 -.8 -1.1 -.8 .1 .1 .1 -.2
1.1 1.2

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA

OCTOBER 1995

FIGURE 30

NOAA–14, USING ALL OBSERVATIONS

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

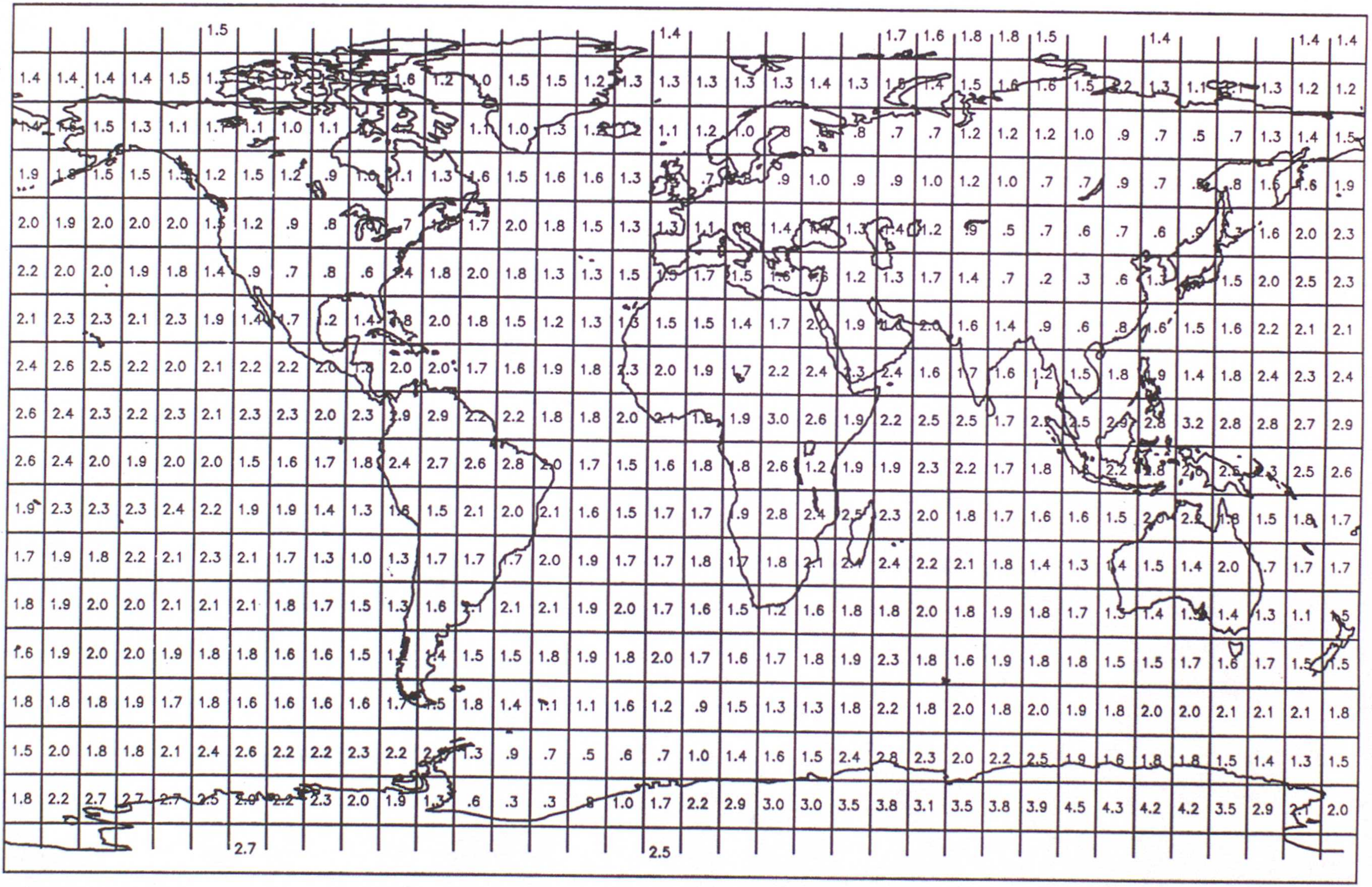

1.5 1.4 1.7 1.6 1.8 1.8 1.5 1.4 1.4 1.4
1.4 1.4 1.4 1.4 1.5 1.3 1.6 1.2 1.0 1.5 1.5 1.2 1.3 1.3 1.3 1.3 1.3 1.4 1.3 1.5 1.4 1.5 1.6 1.6 1.5 2.2 1.3 1.1 2.1 1.3 1.2 1.2
1.4 1.6 1.5 1.3 1.1 1.7 1.1 1.0 1.1 1.1 1.0 1.3 1.2 1.2 1.1 1.2 1.0 .8 .8 .8 .7 .7 1.2 1.2 1.2 1.0 .9 .7 .5 .7 1.3 1.4 1.5
1.9 1.8 1.5 1.5 1.5 1.2 1.5 1.2 .9 1.0 1.1 1.3 1.6 1.5 1.6 1.6 1.3 .7 .8 .9 1.0 .9 .9 1.0 1.2 1.0 .7 .7 .9 .7 .8 .8 1.6 1.6 1.9
2.0 1.9 2.0 2.0 2.0 1.5 1.2 .9 .8 .7 1.7 1.7 2.0 1.8 1.5 1.3 1.3 1.1 .8 1.4 1.4 1.3 1.4 1.2 .9 .5 .7 .6 .7 .6 .9 .3 1.6 2.0 2.3
2.2 2.0 2.0 1.9 1.8 1.4 .9 .7 .8 .6 .4 1.8 2.0 1.8 1.3 1.3 1.5 1.5 1.7 1.5 1.6 1.6 1.2 1.3 1.7 1.4 .7 .2 .3 .6 1.3 1.5 2.0 2.5 2.3
2.1 2.3 2.3 2.1 2.3 1.9 1.4 .7 .2 1.4 1.8 2.0 1.8 1.5 1.2 1.3 1.3 1.5 1.5 1.4 1.7 2.0 1.9 1.6 2.0 1.6 1.4 .9 .6 .8 1.6 1.5 1.6 2.2 2.1 2.1
2.4 2.6 2.5 2.2 2.0 2.1 2.2 2.2 2.0 1.8 2.0 2.0 1.7 1.6 1.9 1.8 2.3 2.0 1.9 1.7 2.2 2.4 2.3 2.4 1.6 1.7 1.6 1.2 1.5 1.8 1.9 1.4 1.8 2.4 2.3 2.4
2.6 2.4 2.3 2.2 2.3 2.1 2.3 2.3 2.0 2.3 1.9 2.9 2.2 2.2 1.8 1.8 2.0 2.1 1.8 1.9 3.0 2.6 1.9 2.2 2.5 2.5 1.7 2.5 2.5 2.9 2.8 3.2 2.8 2.8 2.7 2.9
2.6 2.4 2.0 1.9 2.0 2.0 1.5 1.6 1.7 1.8 2.4 2.7 2.6 2.8 2.0 1.7 1.5 1.6 1.8 1.8 2.6 1.2 1.9 1.9 2.3 2.2 1.7 1.8 1.8 2.2 1.8 2.6 2.5 2.3 2.5 2.6
1.9 2.3 2.3 2.3 2.4 2.2 1.9 1.9 1.4 1.3 1.8 1.5 2.1 2.0 2.1 1.6 1.5 1.7 1.7 1.9 2.8 2.4 2.5 2.3 2.0 1.8 1.7 1.6 1.6 1.5 2.0 2.5 1.8 1.5 1.8 1.7
1.7 1.9 1.8 2.2 2.1 2.3 2.1 1.7 1.3 1.0 1.3 1.7 1.7 1.7 2.0 1.9 1.7 1.7 1.8 1.7 1.8 2.1 2.4 2.4 2.2 2.1 1.8 1.4 1.3 1.4 1.5 1.4 2.0 .7 1.7 1.7
1.8 1.9 2.0 2.0 2.1 2.1 2.1 1.8 1.7 1.5 1.3 1.6 2.1 2.1 2.1 1.9 2.0 1.7 1.6 1.5 1.2 1.6 1.8 1.8 2.0 1.8 1.9 1.8 1.7 1.5 1.4 1.3 1.4 1.3 1.1 1.5
1.6 1.9 2.0 2.0 1.9 1.8 1.8 1.6 1.6 1.5 1.4 1.4 1.5 1.5 1.8 1.9 1.8 2.0 1.7 1.6 1.7 1.8 1.9 2.3 1.8 1.6 1.9 1.8 1.8 1.5 1.5 1.7 1.6 1.7 1.5 1.5
1.8 1.8 1.8 1.9 1.7 1.8 1.6 1.6 1.6 1.6 1.7 1.5 1.8 1.4 1.1 1.1 1.6 1.2 .9 1.5 1.3 1.3 1.8 2.2 1.8 2.0 1.8 2.0 1.9 1.8 2.0 2.0 2.1 2.1 2.1 1.8
1.5 2.0 1.8 1.8 2.1 2.4 2.6 2.2 2.2 2.3 2.2 2.3 1.3 .9 .7 .5 .6 .7 1.0 1.4 1.6 1.5 2.4 2.8 2.3 2.0 2.2 2.5 1.9 1.6 1.8 1.8 1.5 1.4 1.3 1.5
1.8 2.2 2.7 2.7 2.7 2.5 2.9 2.2 2.3 2.0 1.9 1.3 .6 .3 .3 .8 1.0 1.7 2.2 2.9 3.0 3.0 3.5 3.8 3.1 3.5 3.8 3.9 4.5 4.3 4.2 4.2 3.5 2.9 2.1 2.0
2.7 2.5

TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)

DATA TYPE:- DRIFTER

MONITORING CENTRE: BRACKNELL

MONTH:October, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoy.

Area monitored :10°N - 80°N, 85°W - 0°W

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :All hours combined.

Elements monitored :Mean sea-level pressure (hPa)
:Wind speed ($m\ s^{-1}$)
:Wind direction (degrees)

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. A positive bias indicates the observation is veered to the background

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors

GROSS ERROR LIMITS :15 hPa (pressure)
:25 $m\ s^{-1}$ (Vector Wind)

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 $m\ s^{-1}$

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
25565	58.1	-43.6	ALL	MSLP	SUR	623	0	0	1.4	-0.3	1.5
40502	30.4	-56.2	ALL	MSLP	SUR	5	0	0	1.1	2.1	2.4
40503	16.8	-14.3	ALL	MSLP	SUR	4	0	0	0.7	2.3	2.4
40603	30.8	-14.0	ALL	MSLP	SUR	2	0	0	0.9	3.4	3.5
40604	34.4	-12.5	ALL	MSLP	SUR	3	0	0	1.7	2.2	2.8
40703	31.2	-12.0	ALL	MSLP	SUR	2	0	0	0.7	2.0	2.1
40704	27.5	-15.7	ALL	MSLP	SUR	8	0	0	1.4	1.6	2.2
40805	28.2	-15.3	ALL	MSLP	SUR	1	0	0	0.0	2.4	2.4
41518	32.4	-70.6	ALL	MSLP	SUR	213	0	0	0.7	0.0	0.7
41519	32.0	-72.1	ALL	MSLP	SUR	242	0	0	0.9	0.2	0.9
41526	33.8	-66.5	ALL	MSLP	SUR	227	0	0	0.8	0.0	0.8
41527	31.9	-68.6	ALL	MSLP	SUR	229	0	0	0.9	0.1	0.9
41529	29.1	-68.6	ALL	MSLP	SUR	226	0	0	0.9	0.2	0.9
41530	32.7	-69.5	ALL	MSLP	SUR	211	0	0	0.8	0.0	0.8
41581	34.1	-68.3	ALL	MSLP	SUR	131	0	0	0.8	2.0	2.2
41582	33.7	-67.6	ALL	MSLP	SUR	18	15	83	0.3	13.2	13.2
41585	31.4	-69.2	ALL	MSLP	SUR	228	0	0	0.9	0.2	0.9
41587	31.6	-69.5	ALL	MSLP	SUR	127	1	1	1.2	-10.8	10.9
41590	32.8	-68.6	ALL	MSLP	SUR	135	1	1	1.3	-10.5	10.6
41591	33.1	-67.4	ALL	MSLP	SUR	127	2	2	1.2	-10.8	10.9
41594	32.3	-73.7	ALL	MSLP	SUR	230	0	0	1.0	0.4	1.0
41595	30.0	-70.3	ALL	MSLP	SUR	201	0	0	0.8	0.4	0.9
44546	33.3	-50.2	ALL	MSLP	SUR	290	0	0	1.4	2.0	2.4
44547	39.9	-42.2	ALL	MSLP	SUR	298	0	0	2.4	-0.5	2.5
44548	35.7	-59.7	ALL	MSLP	SUR	94	0	0	1.2	-1.0	1.6
44613	50.5	-24.6	ALL	MSLP	SUR	1421	2	0	2.0	0.2	2.0
44616	58.1	-27.6	ALL	MSLP	SUR	1749	3	0	1.5	0.7	1.6
44727	53.0	-43.9	ALL	MSLP	SUR	1089	1	0	1.4	-0.3	1.4
44728	57.2	-32.2	ALL	MSLP	SUR	1522	4	0	1.5	0.3	1.5
44742	62.0	-35.5	ALL	MSLP	SUR	1873	2	0	1.4	-0.4	1.5
44760	32.2	-31.5	ALL	MSLP	SUR	521	2	0	1.4	-0.3	1.4
44763	56.3	-42.2	ALL	MSLP	SUR	1649	3	0	1.1	-0.1	1.1
44765	58.4	-28.9	ALL	MSLP	SUR	1647	3	0	1.4	-0.4	1.5
44769	53.4	-28.3	ALL	MSLP	SUR	1625	2	0	1.3	0.1	1.3
44770	33.7	-40.6	ALL	MSLP	SUR	735	3	0	0.9	0.0	0.9
44773	52.0	-34.2	ALL	MSLP	SUR	1187	0	0	1.4	-0.1	1.4
44777	34.4	-34.4	ALL	MSLP	SUR	495	0	0	1.1	0.1	1.1
44780	54.4	-8.6	ALL	MSLP	SUR	1	1	100	0.0	0.0	0.0
47531	74.1	-77.8	ALL	MSLP	SUR	7	7	100	0.0	0.0	0.0
52621	44.7	-63.6	ALL	MSLP	SUR	60	0	0	1.1	-3.4	3.5
56509	44.7	-63.6	ALL	MSLP	SUR	31	0	0	1.2	-3.7	3.9
56511	44.7	-63.6	ALL	MSLP	SUR	56	0	0	1.1	-3.4	3.6
56512	44.7	-63.6	ALL	MSLP	SUR	53	0	0	1.1	-3.1	3.3
62501	49.1	-17.9	ALL	MSLP	SUR	480	0	0	1.9	0.2	1.9
62502	45.7	-16.2	ALL	MSLP	SUR	506	0	0	1.3	0.5	1.4
62503	47.4	-18.4	ALL	MSLP	SUR	481	0	0	1.6	0.6	1.7
62504	45.8	-18.5	ALL	MSLP	SUR	447	0	0	1.6	0.5	1.7
62511	48.4	-10.8	ALL	MSLP	SUR	583	0	0	1.1	0.7	1.3
62517	46.2	-21.2	ALL	MSLP	SUR	63	2	3	1.0	0.4	1.0
62518	42.4	-15.5	ALL	MSLP	SUR	562	0	0	1.1	0.0	1.1
62519	47.5	-19.2	ALL	MSLP	SUR	365	0	0	1.7	-0.2	1.7
62524	28.0	-53.0	ALL	MSLP	SUR	637	1	0	1.2	0.4	1.2
63661	70.9	-16.2	ALL	MSLP	SUR	793	4	1	2.4	-0.4	2.4
65581	57.3	-34.6	ALL	MSLP	SUR	891	16	2	2.0	0.0	2.0
65594	61.5	-37.2	ALL	MSLP	SUR	1835	0	0	1.4	-0.2	1.4
WIND SPEED											
40502	30.4	-56.2	ALL	SPEED	SUR	5	0	0	3.9	2.9	4.9
40503	16.8	-14.3	ALL	SPEED	SUR	3	0	0	0.9	0.6	1.1
40603	30.8	-14.0	ALL	SPEED	SUR	1	0	0	0.0	6.8	6.8

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
WIND SPEED											
40604	34.4	-12.5	ALL	SPEED	SUR	3	0	0	0.3	0.0	0.3
40703	31.2	-12.0	ALL	SPEED	SUR	2	0	0	1.5	1.2	2.0
40704	27.5	-15.7	ALL	SPEED	SUR	7	0	0	3.2	1.4	3.5
40805	28.2	-15.3	ALL	SPEED	SUR	1	0	0	0.0	-6.1	6.1
41518	32.4	-70.6	ALL	SPEED	SUR	14	0	0	1.7	-0.2	1.7
41526	33.8	-66.5	ALL	SPEED	SUR	223	0	0	2.0	-2.1	2.9
41529	29.1	-68.6	ALL	SPEED	SUR	220	0	0	2.0	-2.0	2.9
41585	31.4	-69.2	ALL	SPEED	SUR	226	0	0	1.7	0.7	1.8
44613	50.5	-24.6	ALL	SPEED	SUR	1455	0	0	2.5	-0.6	2.6
44616	58.1	-27.6	ALL	SPEED	SUR	568	3	1	4.1	-8.0	9.0
44742	62.0	-35.5	ALL	SPEED	SUR	1860	1	0	2.4	-1.1	2.6
62501	49.1	-17.9	ALL	SPEED	SUR	470	0	0	3.1	0.1	3.1
62502	45.7	-16.2	ALL	SPEED	SUR	500	2	0	2.5	0.3	2.5
62517	46.2	-21.2	ALL	SPEED	SUR	2	2	100	0.0	0.0	0.0
62518	42.4	-15.5	ALL	SPEED	SUR	551	0	0	1.8	0.2	1.8
WIND DIRECTION											
40502	30.4	-56.2	ALL	DIRN.	SUR	5	0	0	7.6	-1.6	7.7
40503	16.8	-14.3	ALL	DIRN.	SUR	2	0	0	36.6	32.0	48.6
40603	30.8	-14.0	ALL	DIRN.	SUR	1	0	0	0.0	-7.8	7.8
40604	34.4	-12.5	ALL	DIRN.	SUR	2	0	0	68.6	55.0	87.9
40703	31.2	-12.0	ALL	DIRN.	SUR	1	0	0	0.0	-26.2	26.2
40704	27.5	-15.7	ALL	DIRN.	SUR	7	0	0	34.2	-10.0	35.7
40805	28.2	-15.3	ALL	DIRN.	SUR	1	0	0	0.0	-28.5	28.5
41518	32.4	-70.6	ALL	DIRN.	SUR	2	0	0	10.0	135.9	136.3
41526	33.8	-66.5	ALL	DIRN.	SUR	111	0	0	20.5	9.9	22.7
41529	29.1	-68.6	ALL	DIRN.	SUR	136	0	0	29.7	25.7	39.2
41585	31.4	-69.2	ALL	DIRN.	SUR	162	0	0	41.2	23.1	47.3
44613	50.5	-24.6	ALL	DIRN.	SUR	1337	0	0	29.6	5.7	30.2
44616	58.1	-27.6	ALL	DIRN.	SUR	468	3	1	62.6	49.5	79.8
44742	62.0	-35.5	ALL	DIRN.	SUR	1727	1	0	22.2	16.5	27.6
62501	49.1	-17.9	ALL	DIRN.	SUR	419	0	0	43.2	-13.3	45.2
62502	45.7	-16.2	ALL	DIRN.	SUR	391	2	1	24.7	-17.6	30.3
62517	46.2	-21.2	ALL	DIRN.	SUR	2	2	100	0.0	0.0	0.0
62518	42.4	-15.5	ALL	DIRN.	SUR	489	0	0	24.9	1.5	25.0

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:October, 95

Monitoring procedures:

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :40°N - 70°N, 60°W - 0°W.

Standard of comparison :Background field from Bracknell global model.

Observation times :All hours combined.

Level(s) monitored :300.0 - 150.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored :N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	3146	0	1	1.7	0.0	3139	0	2	0	8.1	1.2
AAN	118	0	1	1.9	-0.1	117	0	3	0	9.5	0.3
ACA	674	0	1	1.7	-0.2	692	0	2	1	7.0	0.9
ACU	26	0	0	1.9	-0.2	26	0	0	0	9.7	1.3
AEA	88	5	100	2.0	0.0	87	0	13	0	11.3	0.5
AEL	331	1	4	2.3	-0.4	334	0	4	0	9.1	1.6
AFL	258	4	100	3.7	2.4	257	1	7	0	10.9	1.1
AFR	755	1	7	2.0	-0.1	759	1	7	0	8.9	1.6
AIH	102	1	0	1.3	0.1	103	0	0	0	7.8	1.4
AMX	128	1	3	1.7	-0.3	131	0	6	0	10.0	1.9
ANZ	159	0	1	1.9	-0.7	158	0	1	0	6.9	0.4
AOM	133	1	3	2.1	0.9	134	0	4	1	9.8	0.9
AUA	41	0	10	1.6	-0.1	41	0	10	0	7.6	3.3
AVA	125	2	7	2.4	0.0	131	0	7	0	12.4	1.7
AZA	436	3	5	2.5	0.5	437	0	3	0	9.2	1.3
BAL	279	0	15	1.8	-0.1	284	0	16	0	8.1	1.2
BAW	1558	0	3	1.9	0.1	1559	0	5	0	8.3	0.8
BBB	53	0	17	2.3	-0.9	59	2	22	0	8.5	0.2
BWA	116	0	4	2.1	0.6	126	1	8	1	11.7	0.9
CDN	712	0	1	1.8	0.1	713	0	4	1	7.7	1.2
CFC	20	0	5	1.8	-0.1	20	0	10	5	6.6	0.7
CFG	505	0	2	1.9	-0.6	513	0	4	0	9.1	0.8
CKS	48	4	6	2.2	-0.4	51	0	10	0	12.4	2.1
CKT	73	0	1	2.5	1.1	73	0	3	0	11.2	0.2
CLI	99	0	0	1.8	-0.6	104	0	0	0	6.4	1.1
CLX	107	0	1	2.0	-0.7	109	0	2	0	7.4	1.8
CMM	82	0	15	2.0	0.2	84	0	14	0	7.9	1.1
COA	359	0	2	1.9	0.9	367	1	3	0	8.2	1.0
CRL	131	2	2	2.0	0.5	131	0	3	2	8.1	2.4
CTM	42	0	12	2.9	-1.1	42	0	14	0	5.2	1.8
CUB	193	4	100	2.9	1.8	194	0	100	0	11.5	1.8
DAF	33	0	0	2.1	-1.2	32	0	0	0	8.1	1.8
DAL	2885	0	1	1.9	0.4	2899	0	2	0	8.7	1.1
DHL	429	2	100	3.9	-1.8	429	0	3	0	9.4	0.3
DLH	2305	1	9	2.4	0.5	2313	0	10	2	7.9	1.1
DOA	179	2	18	2.4	0.9	177	1	20	0	11.1	1.1
EIA	141	1	9	1.8	0.1	143	0	11	0	10.1	2.1
ELY	165	1	8	1.8	0.1	167	0	9	1	9.0	0.6
EWW	105	5	11	4.1	-0.9	109	0	11	0	13.7	3.4
FDX	517	0	2	1.9	0.7	527	0	3	0	9.6	1.2
FIN	372	0	1	2.0	0.5	369	0	2	1	7.9	1.3
GAF	122	1	1	1.8	-0.2	123	0	2	0	8.8	0.8
GFA	28	0	4	1.7	-0.1	28	0	4	0	7.2	1.5
HLF	86	0	2	1.8	-0.3	85	0	2	0	9.6	1.8
IBE	1016	1	20	2.5	0.5	1028	0	21	0	11.2	1.8
ICE	403	0	0	1.5	0.1	398	0	3	2	7.5	0.9
KLM	1985	0	2	1.9	0.4	1985	0	2	1	8.3	1.6
LDA	134	0	12	2.1	-1.3	137	0	10	0	10.0	2.2
LDI	69	12	16	4.0	0.4	73	0	12	0	11.4	0.4
LIB	40	0	5	2.2	0.7	43	0	2	0	8.4	-0.3
LOT	268	0	0	1.8	-0.3	265	0	1	0	8.9	0.9
LTU	513	0	5	1.9	0.5	505	0	5	0	8.2	1.6
MAH	26	0	4	2.6	1.8	27	0	0	0	8.7	1.3
MPH	464	0	2	1.9	-0.4	474	0	2	0	8.4	1.3
NUG	182	0	3	1.8	-1.6	182	0	3	0	7.5	5.6
NWA	2381	0	1	2.1	1.2	2410	0	1	0	8.1	0.6
OAL	36	3	6	3.1	1.8	36	0	8	0	9.3	0.9
PAC	25	0	12	2.5	0.5	25	0	12	0	6.3	1.6
PIA	26	4	4	1.9	1.3	26	0	0	0	8.7	1.3

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
RIA	28	4	21	3.7	2.7	28	0	14	0	14.6	1.7
RJA	53	4	4	2.7	1.0	53	0	6	0	11.6	1.1
RRR	187	2	20	2.3	-0.1	191	1	22	0	9.7	0.7
SAB	34	0	0	1.9	-0.3	33	0	0	0	8.2	3.6
SAS	1144	0	1	1.8	-0.1	1141	0	2	1	8.3	0.4
SIA	64	0	9	2.0	-1.1	66	0	15	0	10.5	0.0
SPP	103	0	16	2.8	1.4	103	0	19	0	11.7	1.4
SVA	122	0	2	2.0	-0.2	126	0	2	0	7.8	1.7
SWR	173	0	5	1.8	0.2	175	0	7	0	9.3	1.7
TAP	315	0	6	1.9	-0.1	315	0	7	0	9.1	1.5
TEJ	85	0	33	1.9	0.4	86	0	35	0	13.8	1.6
THY	39	3	23	3.0	-1.5	38	0	24	0	18.9	6.4
TOW	106	0	3	1.8	0.0	108	2	6	0	10.4	-0.1
TSC	58	0	2	1.5	0.5	58	0	2	0	8.4	1.4
TWA	1288	1	3	2.1	0.0	1290	0	2	0	9.1	1.3
UAL	1563	0	1	2.1	-0.8	1580	0	2	0	7.7	0.9
UKR	25	0	28	3.9	2.3	25	0	20	0	15.0	1.2
ULE	143	1	4	1.5	0.1	144	0	6	0	10.9	1.7
UPS	658	0	16	1.7	-0.1	664	0	17	0	8.9	0.7
USA	268	0	1	1.9	0.0	270	1	4	0	8.6	2.6
VIA	88	1	1	2.0	1.0	89	0	6	1	10.9	0.9
VIR	166	0	2	2.0	-0.2	169	0	5	1	11.8	2.3
WOA	66	0	3	1.7	0.0	69	0	4	0	8.1	2.3
BA	9204	0	14	1.7	0.5	9203	0	28	0	7.3	1.2
KL	4344	0	13	1.7	0.6	4343	0	24	0	7.6	1.1
LH	276	0	15	1.4	0.3	276	0	15	0	6.0	0.1
MS	20	0	10	3.4	-0.8	20	0	5	0	8.5	0.8
SV	74	0	3	2.1	1.7	74	0	1	0	6.7	2.8
M	164	5	100	3.6	0.8	170	1	100	1	14.9	4.0
N	330	2	5	2.5	0.6	345	0	5	0	9.8	-0.2

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:October, 95

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
GROSS ERROR LIMITS	:Defined in Appendix I.1	

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBLK	00	Z	100	1	0	0.0	20.0	20.0
DBLK	12	Z	100	16	0	18.3	24.5	16.3
FN	00	Z	100	1	0	0.0	35.0	-35.0
FNOR	00	Z	100	5	0	21.8	32.4	24.0
FNOR	12	Z	100	6	0	20.3	23.3	11.5
FNOU	00	Z	100	12	0	20.9	24.8	13.4
FNOU	12	Z	100	11	0	21.2	22.9	8.6
FNPH	00	Z	100	13	0	11.3	12.5	5.5
FNPH	12	Z	100	14	0	21.7	22.2	-4.9
FNRS	00	Z	100	14	0	17.9	18.0	-2.1
FNRS	12	Z	100	16	0	20.6	21.2	-4.8
GACA	00	Z	100	27	0	15.6	18.7	10.2
GACA	12	Z	100	27	0	15.7	17.3	7.1
JBOA	00	Z	100	1	0	0.0	2.0	2.0
JCCX	00	Z	100	1	0	0.0	35.0	35.0
JDWX	00	Z	100	1	0	0.0	24.0	24.0
JIVB	00	Z	100	1	0	0.0	13.0	13.0
LDWR	00	Z	100	23	0	16.8	16.8	-0.3
LDWR	12	Z	100	24	0	16.5	16.5	-1.0
OXVH2	00	Z	100	17	0	29.1	32.3	13.8
OXVH2	12	Z	100	16	0	14.3	20.0	14.0
OXYH2	00	Z	100	16	0	16.5	17.3	5.2
OXYH2	12	Z	100	14	1	17.5	26.9	20.5
PSDIS	00	Z	100	1	0	0.0	18.0	18.0
SHIP	00	Z	100	1	0	0.0	26.0	26.0
SHIPS	00	Z	100	9	0	19.6	29.5	22.1
SHIPS	12	Z	100	6	0	14.1	53.4	51.5
V2GH	00	Z	100	18	0	27.6	27.7	-1.9
V2GH	12	Z	100	20	0	32.1	32.4	-4.8
V2LV	00	Z	100	12	0	17.3	20.9	-11.8
V2LV	12	Z	100	17	0	15.7	15.8	1.5
V2LX	00	Z	100	19	0	19.1	25.8	17.3
V2LX	12	Z	100	17	0	25.8	29.5	14.2
WTEA	00	Z	100	1	0	0.0	34.0	34.0
ZDLG	00	Z	100	1	0	0.0	47.0	47.0
ZDLG	12	Z	100	5	0	13.4	19.6	14.4
03953	00	Z	100	29	0	17.1	21.6	13.1
03953	12	Z	100	31	0	17.2	19.1	8.4
04018	00	Z	100	30	0	15.3	21.6	15.3
04018	12	Z	100	30	0	17.9	28.8	22.6
04220	00	Z	100	29	0	9.6	18.9	16.3
04220	12	Z	100	31	0	14.3	20.9	15.2
04270	00	Z	100	30	0	20.2	20.3	1.6
04270	12	Z	100	31	0	15.8	16.4	4.1
04339	00	Z	100	29	0	16.7	22.5	15.1
04339	12	Z	100	30	0	13.2	23.8	19.8
04360	00	Z	100	31	0	15.6	17.6	8.1
04360	12	Z	100	30	0	11.5	14.7	9.2
08001	00	Z	100	27	0	16.2	17.5	6.7
08001	12	Z	100	27	0	19.9	20.0	1.7
08508	00	Z	100	29	0	17.9	20.7	10.3
08508	12	Z	100	30	0	32.3	32.3	1.6
08594	00	Z	100	1	0	0.0	97.0	-97.0
08594	12	Z	100	16	0	35.0	39.9	19.1
60020	00	Z	100	29	0	15.2	16.5	6.6
60020	12	Z	100	31	0	14.0	14.3	3.3
71600	00	Z	100	30	0	16.9	19.3	9.3
71600	12	Z	100	31	0	12.0	14.9	8.8
72201	00	Z	100	23	0	20.5	21.2	5.3
72201	12	Z	100	28	0	33.6	37.9	17.4

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
72402	00	Z	100	25	0	19.9	41.2	36.0
72402	12	Z	100	30	0	22.3	56.4	51.9
74494	00	Z	100	24	0	25.0	26.3	-8.1
74494	12	Z	100	30	0	28.1	33.7	18.6
78016	00	Z	100	22	0	13.8	14.3	3.8
78016	12	Z	100	26	0	12.8	19.1	14.2

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:October, 95

Monitoring procedures:

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :500 hPa.

Element monitored :GEOPOTENTIAL HEIGHT in metres

Parameters monitored :NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBLK	00	Z	500	1	0	0.0	13.0	13.0
DBLK	12	Z	500	15	0	13.7	16.0	8.3
FN	00	Z	500	1	0	0.0	16.0	-16.0
FNOR	00	Z	500	6	0	10.0	12.7	7.8
FNOR	12	Z	500	10	0	6.7	7.0	2.0
FNOU	00	Z	500	14	0	19.6	19.7	1.9
FNOU	12	Z	500	12	0	19.5	19.7	2.8
FNPH	00	Z	500	13	0	8.5	8.7	-1.8
FNPH	12	Z	500	15	0	12.2	12.2	-0.7
FNRS	00	Z	500	14	0	8.0	8.0	-0.3
FNRS	12	Z	500	16	0	8.7	10.2	5.3
GACA	00	Z	500	27	0	15.1	15.1	-0.4
GACA	12	Z	500	27	0	12.3	12.3	0.3
JBOA	00	Z	500	1	0	0.0	7.0	7.0
JCCX	00	Z	500	1	0	0.0	2.0	2.0
JDWX	00	Z	500	1	0	0.0	6.0	6.0
JIVB	00	Z	500	1	0	0.0	12.0	12.0
LDWR	00	Z	500	24	0	13.8	13.9	-0.8
LDWR	12	Z	500	24	0	17.4	17.4	0.9
OXVH2	00	Z	500	20	0	25.2	25.6	4.4
OXVH2	12	Z	500	19	0	14.1	14.7	-4.2
OXYH2	00	Z	500	16	0	20.2	20.9	-5.3
OXYH2	12	Z	500	15	0	34.3	36.1	11.0
PSDIS	00	Z	500	1	0	0.0	19.0	-19.0
SHIP	00	Z	500	1	0	0.0	26.0	26.0
SHIPS	00	Z	500	9	0	8.1	16.2	14.0
SHIPS	12	Z	500	8	0	5.4	15.0	14.0
V2GH	00	Z	500	20	0	17.2	18.7	-7.1
V2GH	12	Z	500	21	0	26.5	27.2	-6.2
V2LV	00	Z	500	15	0	10.5	11.2	-4.1
V2LV	12	Z	500	18	0	7.5	7.6	-0.8
V2LX	00	Z	500	19	0	12.3	15.2	8.9
V2LX	12	Z	500	17	0	13.7	15.7	7.6
WTEA	00	Z	500	1	0	0.0	10.0	-10.0
ZDLG	00	Z	500	1	0	0.0	9.0	-9.0
ZDLG	12	Z	500	4	0	6.0	14.3	13.0
03953	00	Z	500	31	0	11.0	11.2	2.1
03953	12	Z	500	31	0	9.9	10.7	4.0
04018	00	Z	500	30	0	15.8	16.3	3.9
04018	12	Z	500	30	0	13.7	13.9	2.4
04220	00	Z	500	30	0	12.1	12.5	3.4
04220	12	Z	500	31	0	13.3	13.4	1.0
04270	00	Z	500	31	0	16.9	17.0	1.7
04270	12	Z	500	30	0	12.9	12.9	-0.6
04339	00	Z	500	28	0	13.8	15.7	7.5
04339	12	Z	500	30	0	9.9	12.3	7.3
04360	00	Z	500	31	0	12.9	13.0	-1.0
04360	12	Z	500	30	0	9.0	9.4	-2.6
08001	00	Z	500	29	0	11.8	12.8	5.0
08001	12	Z	500	29	0	15.5	15.6	2.3
08508	00	Z	500	30	0	11.7	12.2	3.5
08508	12	Z	500	30	0	17.2	17.3	-2.1
08594	00	Z	500	1	0	0.0	30.0	-30.0
08594	12	Z	500	19	1	15.6	17.0	-6.7
60020	00	Z	500	29	0	9.1	16.0	13.1
60020	12	Z	500	31	0	11.4	15.0	9.7
71600	00	Z	500	30	0	12.2	13.1	4.9
71600	12	Z	500	31	0	9.9	14.6	10.7
72201	00	Z	500	29	0	7.3	11.9	9.3
72201	12	Z	500	31	0	8.2	10.9	7.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
72402	00	Z	500	29	0	10.7	16.1	12.0
72402	12	Z	500	30	0	7.9	16.6	14.7
74494	00	Z	500	29	0	13.1	13.7	-4.3
74494	12	Z	500	31	0	20.8	20.8	-0.4
78016	00	Z	500	22	0	12.8	12.8	-0.7
78016	12	Z	500	27	0	11.0	11.5	3.3

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:October, 95

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:VECTOR WIND in $m\ s^{-1}$
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBLK	00	V	100	1	0	0	4.5	0.9	-0.7
DBLK	12	V	100	17	0	0	4.5	0.1	0.2
FN	00	V	100	1	0	0	1.7	-3.3	0.3
FNOU	00	V	100	12	0	0	1.7	0.0	-1.5
FNOU	12	V	100	11	0	0	2.4	-3.6	-0.4
FNPH	00	V	100	13	0	0	3.5	-2.4	-1.3
FNPH	12	V	100	14	0	0	4.2	-1.7	0.2
FNRS	00	V	100	14	0	0	4.0	-2.5	-1.0
FNRS	12	V	100	16	0	0	3.2	-2.7	-0.3
GACA	00	V	100	27	0	0	3.2	-0.9	-0.7
GACA	12	V	100	26	0	0	2.9	-2.1	0.0
JBOA	00	V	100	1	0	0	3.2	-0.6	0.3
JCCX	00	V	100	1	0	0	3.1	-2.3	0.7
JDWX	00	V	100	1	0	0	3.1	0.5	1.9
JIVB	00	V	100	1	0	0	3.1	1.6	1.6
LDWR	00	V	100	23	0	0	3.1	0.3	-1.9
LDWR	12	V	100	24	0	0	1.8	0.6	-1.7
OXVH2	00	V	100	17	0	0	1.7	-0.3	0.7
OXVH2	12	V	100	16	0	0	2.6	-0.5	-1.3
OXYH2	00	V	100	16	0	0	4.1	-0.4	0.4
OXYH2	12	V	100	14	0	0	1.7	-1.7	1.3
PSDIS	00	V	100	1	0	0	2.3	-2.4	2.9
SHIP	00	V	100	1	0	0	2.3	-6.2	-2.4
SHIPS	00	V	100	6	0	0	2.3	0.6	1.7
SHIPS	12	V	100	4	0	0	2.3	1.0	-0.9
V2GH	00	V	100	18	0	0	2.3	-2.0	-1.9
V2GH	12	V	100	20	0	5	3.9	-2.1	-0.2
V2LV	00	V	100	11	0	0	3.5	-4.4	1.5
V2LV	12	V	100	16	0	0	4.9	-4.8	1.8
V2LX	00	V	100	18	0	0	4.2	1.1	1.0
V2LX	12	V	100	17	0	0	2.8	0.5	0.3
WTEA	00	V	100	1	0	0	2.7	6.7	9.9
ZDLG	00	V	100	1	0	0	2.7	-4.1	0.1
ZDLG	12	V	100	4	0	0	2.7	5.5	5.0
03953	00	V	100	28	0	0	2.7	-1.0	-1.1
03953	12	V	100	31	0	0	2.5	-1.5	-0.2
04018	00	V	100	30	0	0	2.7	-0.6	0.4
04018	12	V	100	30	0	0	2.4	-0.7	-0.3
04220	00	V	100	29	0	0	1.6	0.4	0.4
04220	12	V	100	31	0	0	2.3	-0.4	1.0
04270	00	V	100	30	0	0	2.2	-0.2	1.5
04270	12	V	100	31	0	0	2.8	0.0	1.0
04339	00	V	100	29	0	0	2.3	0.9	-0.7
04339	12	V	100	29	0	0	2.0	-0.5	0.0
04360	00	V	100	31	0	0	1.2	-0.6	0.4
04360	12	V	100	30	0	0	2.2	-1.2	0.6
08001	00	V	100	27	0	0	2.6	0.7	0.5
08001	12	V	100	25	0	0	2.6	-0.2	-0.5
08508	00	V	100	29	0	0	3.1	-0.8	0.3
08508	12	V	100	30	0	0	3.1	-1.7	0.3
08594	12	V	100	17	0	0	3.2	2.3	2.9
60020	00	V	100	29	0	0	2.6	0.7	0.1
60020	12	V	100	31	0	0	3.5	-0.1	0.2
71600	00	V	100	30	0	0	12.0	-0.7	1.3
71600	12	V	100	30	0	0	3.4	0.8	-0.5
72201	00	V	100	20	0	0	2.4	0.4	1.1
72201	12	V	100	27	0	0	3.3	-1.9	0.3
72402	00	V	100	23	0	0	3.5	0.4	0.7
72402	12	V	100	30	0	0	3.6	-0.5	0.6
74494	00	V	100	21	0	0	7.1	-1.7	1.3

```
 WMO   OBS                 NUM    NUM     %
IDENT TIME  ELM   LEV    OBS   GROSS   REJ    RMS    UBIAS   VBIAS

74494   12    V   100     28      0      0    3.2     -0.8     0.4
78016   00    V   100     21      0      0    3.2      0.2     0.2
78016   12    V   100     26      0      0    3.1      0.4     1.1
```

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:OCTOBER, 95

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBLK	00	V	500	1	0	0	2.9	-4.7	1.4
DBLK	12	V	500	15	0	0	2.9	1.7	-0.6
FN	00	V	500	1	0	0	4.2	-0.2	3.7
FNOU	00	V	500	14	0	0	4.2	0.7	0.1
FNOU	12	V	500	12	0	0	4.9	-0.3	0.8
FNPH	00	V	500	14	0	0	3.1	0.9	-1.0
FNPH	12	V	500	14	0	0	3.6	-0.7	-1.0
FNRS	00	V	500	14	0	7	3.6	0.7	-1.0
FNRS	12	V	500	15	0	0	5.5	-1.1	0.1
GACA	00	V	500	27	0	0	3.2	-0.3	-0.4
GACA	12	V	500	27	0	0	4.2	0.2	1.3
JBOA	00	V	500	1	0	0	5.1	-0.2	-0.9
JCCX	00	V	500	1	0	0	3.9	-1.3	-0.7
JDWX	00	V	500	1	0	0	3.9	3.1	0.2
JIVB	00	V	500	1	0	0	3.9	-0.5	1.0
LDWR	00	V	500	24	0	0	3.9	1.0	0.0
LDWR	12	V	500	24	0	0	4.0	0.4	-0.2
OXVH2	00	V	500	19	0	0	4.6	0.8	1.8
OXVH2	12	V	500	19	0	5	3.5	2.3	-2.0
OXYH2	00	V	500	16	0	0	7.1	1.3	-0.2
OXYH2	12	V	500	15	0	0	3.9	-0.2	-0.2
PSDIS	00	V	500	1	0	0	4.4	1.4	0.4
SHIP	00	V	500	1	0	0	4.4	-0.3	-1.1
SHIPS	00	V	500	9	0	11	4.4	2.8	-0.6
SHIPS	12	V	500	8	0	12	4.4	1.1	-0.4
V2GH	00	V	500	20	0	0	4.4	1.3	0.7
V2GH	12	V	500	20	0	5	2.7	0.1	0.4
V2LV	00	V	500	15	0	0	3.2	0.6	0.1
V2LV	12	V	500	14	0	0	3.1	-0.4	1.3
V2LX	00	V	500	18	0	0	2.0	0.7	0.9
V2LX	12	V	500	17	0	0	2.9	-0.6	0.3
WTEA	00	V	500	1	0	0	4.2	2.1	-1.0
ZDLG	00	V	500	1	0	0	4.2	0.2	-6.5
ZDLG	12	V	500	4	0	0	4.2	1.3	0.8
03953	00	V	500	31	0	0	3.8	-0.4	-0.4
03953	12	V	500	31	0	0	3.8	-0.3	1.1
04018	00	V	500	30	0	0	3.4	0.1	0.1
04018	12	V	500	30	0	0	3.6	-0.3	0.8
04220	00	V	500	29	0	0	3.2	0.2	-0.7
04220	12	V	500	31	0	0	3.3	0.2	0.2
04270	00	V	500	31	0	0	2.4	1.2	0.3
04270	12	V	500	30	0	0	3.4	1.0	0.0
04339	00	V	500	27	0	0	3.7	0.8	-0.6
04339	12	V	500	30	0	0	3.6	0.5	0.0
04360	00	V	500	31	0	0	2.9	-0.7	0.3
04360	12	V	500	30	0	0	3.8	-1.3	-0.9
08001	00	V	500	29	0	0	2.3	1.5	0.2
08001	12	V	500	29	0	0	3.8	-0.3	0.1
08508	00	V	500	30	0	0	3.1	1.4	0.3
08508	12	V	500	30	0	0	4.5	-0.6	-1.7
08594	00	V	500	1	0	0	4.7	0.7	-4.6
08594	12	V	500	19	0	0	4.7	-0.5	0.0
60020	00	V	500	29	0	0	5.6	-0.3	0.2
60020	12	V	500	31	0	0	2.3	-1.9	0.1
71600	00	V	500	30	0	0	12.0	0.2	1.2
71600	12	V	500	30	0	0	4.0	-0.3	-0.4
72201	00	V	500	28	0	0	3.9	-0.8	0.3
72201	12	V	500	31	0	0	3.2	-0.1	-1.0
72402	00	V	500	28	0	0	2.7	1.2	1.8
72402	12	V	500	30	0	0	4.8	0.8	0.9

```
 WMO  OBS                  NUM    NUM     %
IDENT TIME ELM   LEV   OBS   GROSS   REJ     RMS     UBIAS   VBIAS

74494  00   V    500    29     0      0    11.7     -0.8      0.3
74494  12   V    500    31     0      0     2.7     -0.8      0.5
78016  00   V    500    22     0      0     2.8     -0.5      0.7
78016  12   V    500    27     0      0     4.0     -1.8      0.0
```

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5,10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed m s^{-1}
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45